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# UNIVERSITY NEWS

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**Association of Indian Universities**

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Special Issue

on

**EVALUATION REFORMS FOR TRANSFORMATIVE  
HIGHER EDUCATION**

on the occasion of

**AIU WEST ZONE VICE CHANCELLORS' MEET—2022-23**

hosted by

**DR. BABASAHEB AMBEDKAR MARATHWADA  
UNIVERSITY, AURANGABAD**

on

February 21–22, 2023

## Announcement

### Special Issue of 'University News'

A **Special Number of the University News** on the theme '*Transformative Higher Education for Atmanirbhar Bharat*' is being brought out in the Month of March, 2023.

The **Special Issue** will cover the articles of eminent educationists on the afore mentioned theme. Readers of the University News are also invited to contribute to the Special Number by submitting papers/articles on the above theme by **March 10, 2023**. The papers will be published in the Issue subject to the approval of the Editorial Committee of the University News. The contributions are invited on the following Subthemes:

- ***Internationalization for Transformative Higher Education***
  - International Student/Faculty Mobility
  - International Collaborations in Research and Teaching
  - Promoting Indian Higher Education abroad
- ***Pedagogies and Use of Technologies for Transformative Higher Education***
  - Innovative Pedagogy & Lifelong Learning
  - Blended Learning
  - Personalized Learning through Edu-Technology
- ***Transformative Curriculum for a Holistic and Multidisciplinary Higher Education***
  - Outcome Based Learning
  - Academy-Industry-Society Interface
  - Integrating Indian Knowledge System through the multidisciplinary Teaching Learning process
- ***Research and Excellence for Transformative Higher Education***
  - Research Funding
  - Promoting Quality & Relevant Research
  - Linking Teaching and Research
- ***Evaluation Reforms for Transformative Higher Education***
  - Continuous Assessment & Evaluation
  - Using technology for Assessment and Evaluation
  - Innovative Assessment Methods and Capacity Building of Faculty
- ***Any Other Relevant Subthemes***

Guidelines for contributors are placed on AIU Website. Manuscripts may be sent to the Editor, University News, Association of Indian Universities, AIU House, 16 Comrade Indrajit Gupta Marg (Kotla Marg), New Delhi- 110 002 through E-mail: [ramapani.universitynews@gmail.com](mailto:ramapani.universitynews@gmail.com) with a copy to: [universitynews@aiu.ac.in](mailto:universitynews@aiu.ac.in) on or before **March 10, 2023**.

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**Opinions expressed in the articles are those of the contributors and do not necessarily reflect the views and policies of the Association**

# Conceptualising AIU West Zone Vice Chancellors' Meet on Evaluation Reforms for Transformative Higher Education

Pankaj Mittal\* and Sistla Rama Devi Pani\*\*

The assessment and evaluation system in higher education is witnessing a sea change worldwide and the change is for the betterment of the education system. As the pace of change accelerates, there is a paradigm shift whole process of education, and the role of educators changes. This change is not only in terms of providing a new teaching-learning process but also added responsibilities in assessment and evaluation. Today education is looked at as a service industry and teaching as a profession, it, therefore, demands accountability, transparency, and professionalism. Of all the things, quality is of paramount importance, and quality in the Indian higher education system has been a formidable challenge. Evaluation plays an important role in the teaching-learning process and the major objective of higher education is to ensure the quality of the product, ie graduating students. Different parameters have evolved over the years to measure the quality aspects. It is therefore essential to have a strong evaluation mechanism.

Evaluation is an inevitable component of the education system and thus it is one of the essential functions of Higher Education Institutions. Evaluation in the context of education is a process of determining the extent to which predetermined educational objectives have been achieved. It is a process of making a judgement on the worth of the task. Evaluation involves a large number of functions with respect to the learners, the teachers, the curriculum, and the system of education as a whole. It is a broad term that enfolds in its ambit a number of systems on which it is applicable. In higher education, the evaluation system is of four levels namely:

*Macro-level:* It is to assess the implementation and the efficacy of national and state-level policies and practices.

*Meso-level.* This level is to assess and accredit HEIs.

*Micro-level:* This level is to assess the performance of the individuals and functionaries like administrators, managers, secretarial staff, teachers, etc.

*Mega-level:* This level is for evaluating the main target group of HEIs ie. the students.

In the case of the first two levels, the main tool generally is the self-study report and the process involves validation of Self Study Report by a Review Committee. The third level ie., evaluation of teachers, administrative staff, etc., is mainly through Annual Performance Appraisals.

For the fourth level ie Mega Level, there is a full-fledged system of student evaluation which is commonly called the examination system. The examination System is essential because it is the only way to assess the educational outcome of the students and verify whether the education imparted to them could achieve the laid down objectives. The examination helps test the competency of the students and also helps to act as an external motivator of learning. Its scope ranges from providing feedback to the learners and teachers to making predictions of the future probable performance of learners and providing inputs to the evaluation of the curriculum and the system at large.

The concept of the modern university system in India was developed by the British and it was different from what Indians understood since the time of Nalanda and Takshashila. The examination system is also quite different from the ancient Indian examination system. Whereas, the ancient Indian examination used to assess learners in physical, mental, social, and spiritual aspects along with cognitive, affective, and conative domains of the learner, the present examination system in India which was imposed by the British, evaluates the learners on western parameters emphasising mostly the cognitive domain alone. It involved continuous comprehensive evaluation with rigor and precision. There are several other drawbacks in the system due to which the Indian examination system is under severe criticism. Way back in 1948, the Education Commission said,

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“if they had to suggest one single reform in university education, it would be that of examination.” Noted educationist and former President of India Dr. Radhakrishnan wrote, “For nearly half a century, the examination system has been recognized as one of the worst features of Indian Education”.

Unfortunately, the situation remains the same even today. Some of the common criticisms of the examination system in India are its confinement to test rote learning and not testing higher order skills like reasoning and analysis, lateral thinking, creativity, and judgment.; rigid /inflexible; based on a ‘one-size-fits-all’ making no allowance for different types of learners and learning environments; inducing anxiety and stress in examinees; lack of full disclosure and transparency in grading and marking; and most importantly it is inappropriate for the ‘knowledge society’ of the 21<sup>st</sup> century and its need for innovative problem-solvers. Though the defects in the examination system have been identified long back hardly any efforts were made to bring major reforms required to improve the examination system *per se*, to enable the assessment of the overall development of the learners and certify them as educated.

### **AIU Vice Chancellors’ Meets 2022-23**

The Association of Indian Universities (AIU), one of the premier higher education institutions in India, was established in 1925. It plays a vital role in shaping Indian higher education by being a research-based policy advice institution to the Government of India in the field of Higher Education, Sports, and Culture. One of the key activities of the AIU is to convene the Vice Chancellors’ Meets at the Zonal and National levels to discuss various issues related to higher education. India is a country with a large geographical area, for ease of reaching out, AIU has grouped the member HEIs into 5 zones—East, West, North, South, and Central. Each zone is constituted of HEIs located in 5-6 States grouped in that Zone. Thus, 5 Zonal Meets and one National Vice Chancellor’ Meet are organized annually. These Meets are important platforms not only to discuss the significant issues of higher education but also to play a catalytic role in finding solutions for different problems of higher education through collective wisdom. Further, AIU carries forward the voice of the participating leaders of higher education to appropriate agencies and authorities for their dispensation. Every year in the Annual Vice Chancellors’ Meet, a specific theme that is of topical significance for the higher education

community is taken up for discussion. As a run-up, subthemes related to the main theme are discussed in the Zonal Vice Chancellors’ Meets.

Indian Higher Education is going through the most interesting revolutions in the centuries, and that too at a very rapid pace. These revolutions are being reinvigorated and accelerated through both natural and manmade happenings. The most important happenings among others are the launch of the National Education Policy –2020 and the global Pandemic COVID-19. The National Education Policy geared the academia of the country to build an education system rooted in Indian ethos taking the best from global education practices which contribute directly to transforming India by providing high-quality education to all. Simultaneously, COVID-19 compelled us to undergo massive disruptions and shifts in education processes and practices. The need of the hour is to adopt Transformative Education and Transformative Pedagogies. Transformative Higher Education *can be construed as higher education that empowers learners to be reflective and critical thinkers and committed tech-savvy individuals who are able to contribute meaningfully to the local and global communities*. Transformative education equips learners with the core knowledge, values, attitudes, and skills needed to address pressing local and global challenges in addition to preparing them to contribute to a more just, inclusive, diverse, equitable, secure, and sustainable future for all.

To guide and support the Indian HEIs in imparting state-of-the-art Transformative Higher Education to the students, AIU as a representative body of HEIs in India is organizing all the Zonal and National Vice Chancellors Conferences in 2022-23 on the theme: ***Transformative Higher Education for Atmanirbhar Bharat***.

In Zonal Vice Chancellors Meets, themes on different essential aspects of teaching-learning in the light of Transformative Higher Education are being discussed exclusively.

- a. *North Zone*: Internationalization for Transformative Higher Education
- b. *East Zone*: Pedagogies and Use of Technologies for Transformative Higher Education
- c. *Central Zone*: Transformative Curriculum for a holistic and Multidisciplinary Higher Education
- d. *South Zone*: Research and Excellence for Transformative Higher Education



e. *West Zone: Evaluation Reforms for Transformative Higher Education*

### **The Present Meet**

The present Meet, the West Zone Vice Chancellors' Meet is the last zonal meet of the year. The theme for this Meet is '*Evaluation Reforms for Transformative Higher Education*'.

The Meet aims to focus on the examination system in India and motivate and facilitate the HEIs to bring in reforms required to make it the most efficient system. The discussions will primarily focus on all important components of the present examination system like the conduct of examinations, marking and grading, re-evaluation, transparency in the declaration of results continuous comprehensive evaluation, innovative assessment methods, training needs for examination functionaries and capacity building, professional skills to design, implement, and monitor effective examinations competitive examinations, emerging challenges posed as an outcome of the COVID-19 pandemic, etc. Share relevant innovative best practices, case studies, and lessons in the examinations; ways to enable educational leaders, educators, policymakers, and other stakeholders to unlock and utilize the potential of technologies to make examinations effective, credible, enjoyable, and transparent.

The two-day event will include the following 3 Technical Sessions to discuss the concerned topics:

#### **Technical Session--1: Continuous Assessment & Evaluation**

#### **Technical Session-2: Using Technology for Assessment and Evaluation**

#### **Technical Session-3: Innovative Assessment Methods and Capacity Building of Faculty**

#### **Session Details**

##### ***Technical Session-1: Continuous Assessment & Evaluation***

The two methods which were commonly known and used for the assessment of students are summative assessment and formative assessment. Formative assessments include a wide variety of assessments conducted during the learning process. Formative assessments include quizzes, discussions, debates, observations, role-play, unit tests, etc. These assessments are conducted during the learning process to assess the understanding throughout the

process rather than at the end of the process. By giving immediate and continual feedback, students can identify their strengths and work on their weaknesses before they become an issue. Summative assessments are conducted at the end of each term to map the extent of conceptual learning of the students during the academic session or year. A summative assessment is conducted at the end of the term to assess the effectiveness of the learning process and showcase the overall performance of the students within the academic year. Summative assessments are often formal tests that measure student progress and the effectiveness of teacher instruction during the term. Individually, these tests are not capable of assessing the required dimensions and domains of student learning. When we combine these and add the input of assessment of co-scholastic activities the purpose gets served. It is this combination of formative, summative, and co-scholastic assessment that is called continuous comprehensive assessment.

It is referred to as 'comprehensive' because it encompasses an extensive range of assessments using a wide variety of assessment tools to assess all areas of development viz. academic knowledge and social and psychomotor skills. It is described as 'continuous' due to the incorporation of informal teacher evaluations of scholastic and co-scholastic activities throughout the learning process from the beginning to the end of the term. This continuous comprehensive evaluation or assessment provides a holistic profile of the learner.

Way back in 1971, the Association of Indian Universities took a lead and organized a conference on examination reforms. The recommendations of the conference were endorsed by UGC, and in 1973 it came out with Examination Reform –A Plan of Action which mandated all the universities to follow the recommendations of the conference. Major recommendations of the conference among many were to replace the annual system with the semester system and replace the predominant essay-type questions with objective-type questions, replacing grades in place of marks. As a follow-up to the conference, AIU started the question bank project and pioneered creating question banks in all the subjects which were used extensively by all the examining bodies in India including UPSC. Later, in 2015, UGC again initiated a major reform by advising the universities to implement a uniform Choice Based Credit System (CBCS). But till now very few universities implemented the process. In the meantime, the NEP 2020 strongly recommended CBCS and focus on regular formative

assessment for learning rather than the summative assessment that encourages today's 'coaching culture'. "Accordingly, curriculum and pedagogy will be designed by institutions and motivated faculty to ensure a stimulating and engaging learning experience for all students, and continuous formative assessment will be used to further the goals of each programme. All assessment systems shall also be decided by the HEI, including those that lead to final certification. The Choice Based Credit System (CBCS) will be revised for instilling innovation and flexibility. HEIs shall move to a criterion-based grading system that assesses student achievement based on the learning goals for each programme, making the system fairer and outcomes more comparable. HEIs shall also move away from high-stakes examinations toward more continuous and comprehensive evaluation,"(NEP—2020).

The crux of the matter is despite so much of a clarion call, the pace of reforms in examinations is very slow. Without reforming the examination system, transformative education is not possible. It is in this context that the present subtheme was chosen for the Meet. In the Meet, all the aspects related to Continuous Assessment will be discussed and ways and means to expedite the implementation of continuous assessment in HEIs will be worked out.

### ***Technical Session-2: Using Technology for Assessment and Evaluation***

These are the days of technology, rather disruptive technologies. Technology has had a profound impact on almost everything including examinations. COVID-19 lockdown had accelerated the use of technology for education making concepts like online learning and online examinations common thing in HEIs. Technology can be exploited for all the components of examinations like scheduling, paper setting through electronic question banks, online proctoring, etc. Webcam-enabled laptops and computers can be used to conduct examinations. Students and invigilators from around the world can appear and invigilate online examinations virtually, respectively, from any part of the world. Examinations can be administered on a low/basic bandwidth internet connectivity so that examinees in rural and remote areas can also be accessed. The students can be asked by the invigilators to give a 360-degree view of their room, show rough notes front and backside to the invigilators, and students can ask any doubts from manual proctors related to the conduct of exams. All

kinds of examinations like entrance tests to degree examinations and even Ph.D. Viva Voce are possible through technology. Cloud-based automated exam management systems are becoming popular these days.

However, the use of technology for assessment is not as easy as it appears. There are several challenges also. Challenges are mainly associated with access to technology, technical glitches which may affect the uniformity of timings, lack of concentration due to long screen timings, risk of hacking the online exam by impersonation, involvement of third parties, or consultation of unauthorized sources.

NEP–2020 has recommended that the teachers be trained in AI, Design Thinking, and other subjects through AI-enabled Digital Infrastructure for knowledge sharing (DIKSHA) Portal.

Hon'ble Prime Minister Shri Narendra Modi recently announced the launching of several initiatives undertaken under the National Education Policy-2020 including the Artificial Intelligence programme to make the youth future-oriented and open the way for an AI-driven economy. The need of the hour is to make concerted and prudent efforts to make the best use of AI for Indian HEIs.

AI educational solutions can fill needs gaps in learning and teaching and allow HEIs to do more than ever before. AI can drive efficiency, personalization and streamline academics and administration tasks to allow the time and freedom to provide understanding and adaptability. By leveraging the best attributes of machines and teachers, the vision for AI in education is one where they work together for the best outcome for students. Since the students of today will need to work in a future where AI is the reality, it's important that our educational institutions expose students to use the technology. A few technologies with AI that are already affecting education in every way are Chatbots, Virtual Reality (VR), Learning Management Systems (LMS), Robotics, etc. These tools can be used for a variety of purposes, most importantly to assign coursework, communicate with students and parents, track student progress, generate reports on student performance, etc.

AIU has also established ten Academic & Administrative Staff Development Centres in different universities to train the faculty and administrative staff on use of technology for teaching – learning, research and assessment & evaluation. Each centre will be

running 10 courses every year to train the faculty on use of technology.

However, there are several disadvantages also which warrants prudence in utilizing AI for educational purpose. Adopting AI can be daunting for institutions lacking the time, expertise, and resources to explore its many uses. These issues need to be discussed threadbare in the Meet to come out with tangible solutions.

Thus, in this session, there will be deliberations on methodologies and technologies required to make the best use of technology for assessment and evaluation, and preparing strategies to optimize the use of technologies in the examination system.

### ***Technical Session-3: Innovative Assessment Methods and Capacity Building of Faculty***

There is growing recognition around the world that it is not just enough to conduct examinations through prevalent methods. There should be a strong readiness for innovation. NEP-2020 also envisions nurturing innovation in all domains of education and recommends the need to innovate in all components of education. The vision of the policy is to improve the quality of education by giving equal space to creativity and innovation and transforming India into a vibrant knowledge society. Therefore, creating a conducive and enabling environment for innovation and not merely sticking to the traditional methods of teaching and testing is the need of the hour. To facilitate innovation, NEP 2020 has recommended concepts like Choice-Based Credit System, Multiple Entry and Exit Systems, Academic Bank of Credits, etc.

National Policy of Education (NPE, 1986) recommended a re-cast of the examination system. In this regard, the Programme of Action (POA, 1992) of NPE suggested that innovative ideas like open book examination (OBE), diagnostic evaluation, etc. may have experimented with evaluation processes and examination reforms. This recommendation is being implemented now in India but in very few advanced universities like the university of Delhi.

Reforms and innovations are not taking place at desired pace due to the want of trained functionaries. Therefore, the examination system has to be coupled with the vigorous training of university functionaries like teachers, and examination wing staff. The universities desirous of achieving excellence may

establish a Faculty Development Academy not only to train the teachers for creating effective examination systems and undertaking but also to undertake innovations.

In this session, the deliberations will be on developing a conducive environment and infrastructure for creating an efficient examination system for enabling Transformative Higher Education.

### **Format and Approach**

The Sessions will be of 1 Hour and 30 Minutes each. In each Session, there will be experts from Government, HEIs, and ICT. Presentations will be followed by interaction and Q and A. On the basis of deliberations, a commitment statement will be framed for the universities to further the cause of Higher Education in India. In addition to academic deliberations, capacity development initiatives will be taken by forming a group of Vice Chancellors who will work on various dimensions of Transformative Higher Education.

### **Participation and Organization**

Vice Chancellors of Indian Universities, Experts from the Government of India, Apex Bodies of Higher Education, and Academia will be Speakers and Session Chairs. Experts from international organizations will also be invited to contribute. Discussions will be conducted in English. Sessions will be in a blended mode. The speakers, chairs, and participants need to inform in advance about the mode through which they would like to attend the Meet.

### **Conclusion**

Given the significance of Evaluation in higher education and in view of the initiatives taken by the practitioners and policymakers to evolve suitable and effective evaluation methods, it is in the fitness of purpose that a threadbare discussion is done on the theme. The recommendations of this Meet will continue in the National Meet of Vice Chancellors along with the recommendations of all other Zonal Meets. On the basis of these recommendations, a University Action Plan on 'Research and Excellence in Higher Education' will be prepared which will be a handy guide for Higher Education Institutions of the Country. A Policy Document on '*Evaluation Reforms for Transformative Higher Education*' will also be prepared and presented to the Government of India.

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# Dr. Babasaheb Ambedkar Marathwada University, Aurangabad: A Profile

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**Dr. Babasaheb Ambedkar Marathwada University, Aurangabad is hosting the Association of Indian Universities West Zone Vice Chancellors' Meet – 2022-2023 on February 21-22, 2023.**

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Dr. Babasaheb Ambedkar Marathwada University (BAMU), formerly Marathwada University, is located in Aurangabad, Maharashtra. It is named after Bharat Ratna Dr. Babasaheb Ambedkar, an Indian jurist, political philosopher, academician and the chief architect of the Indian Constitution. This university was established primarily on the initiative of Dr. Babasaheb Ambedkar to fill the huge lacuna of higher education facilities in western Vidarbha, Marathwada and North Maharashtra region. Shri Jawaharlal Nehru, the first Prime Minister of India, inaugurated Marathwada University on 23rd August, 1958 in Aurangabad at the premises of the temporary main building of the University and later on shifted to the existing campus. In 1994 the university was renamed with an extension to its existing name Marathwada University to Dr. Babasaheb Ambedkar Marathwada University.

## Recognitions

The academic growth of the university can be traced with the NAAC accreditation and in the third cycle NAAC Re-accredited the University with 'A' grade in 2019 while the University secured 83rd NIRF rank in 2022. This university has contributed to the progress of adjoining regions and people in innumerable ways. Presently, the university has 464 affiliated colleges under its jurisdiction, encompassing four districts (Aurangabad, Jalna, Beed and Osmanabad) of Maharashtra State. The university campus is sprawled across 731 acres with a picturesque background of hills embedded with Aurangabad caves. Since August 23, 1958, the University has ever held a commitment to ensure excellence in higher education as this is the only rural University to be ranked NAAC "A" grade. Through its traditional and cutting-edge 55 academic programs with new courses like Artificial Intelligence and Forensic Sciences, the University seeks to improve the strata of all people in the search for knowledge. The Strategic plan of the university is multi-layered as well as multi-pronged that focuses on Expansion, Inclusion and Excellence (EIE). It subsumes short-

term, intermediate and long-term policies to cater to the ever-growing number of Higher Education aspirants resulting in the enhancement of Gross Enrolment Ratio (GER) that will have positive impact on Human Development Index (HDI). Also, it aims at minimizing the menace of migration. The University Grants Commission has provided financial assistance to five University Departments under support scheme of UGC-SAP. Similarly, Department of Science and Technology, Govt India has also provided financial assistance to four University Departments for augmentation of laboratory infrastructure for PG and research. University faculty members have published more than 2000 research papers in National / International journals of repute and over 45 patents have been granted/published/filed so far.

## Research Centers

At the University, our research is focused on questions of India's futures and is allied to our vision of a just, equitable, humane, and sustainable society. The emphasis of the Research Centre is on contributing to practice on the ground in India's vast social sector, and high-quality academic scholarship in the areas of development, education, public policy, governance, sustainability, and equity. The Research Centre facilitates research by all members of the Foundation. From the frontline work of the Foundation on the ground, we collate research to help our stakeholders understand the real issues in education. Over a period of time, University has developed excellent science and technology infrastructure which includes Paul Hebert Centre for DNA Bar-coding and Biodiversity Studies, RUSA Centre for Advanced Sensor Technology, Central Facility for Advanced Research & Technology, Centre for Coastal and Marine Biodiversity, Centre for Rural Technology Development (Gopinathrao Munde National Institute of Rural Development).

## Research Collaborations

The university has given emphasis on collaborative research with national and international

institution and industries. National and International institutes and bodies provide financial and expert assistance while the university provides expertise in human resource and infrastructure to facilitate collaborative research. Meetings between faculty of different institutes of the university and representatives of industries are encouraged the university, with the purpose of promoting research and inter-institutional collaboration, has recently signed MoUs with, The Hebrew University of Jerusalem, Israel, Tel Aviv University, Israel, Oklahoma State University, Oklahoma, USA, University of Algarve, Portugal, University of California, Riverside, University of Guelph, Ontario, Canada. The university is highly focused on quality research and has established various dedicated research centers especially in the field of Nanotechnology, DNA bar-coding.

### **Outcom- based Education**

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad has emphasis on Outcome Based Education (OBE), a student-centered instruction model that focuses on measuring student performance through outcomes. Outcome-based education or OBE is a student-centric academic model that bases each part of an academic system around goals (outcomes). By the end of the academic semester, each student should have achieved the goal. The OBE maps measures students' performance at every step. The OBE model aims to maximize student learning outcomes by developing their knowledge, skills and attitude. Dr. Babasaheb Ambedkar Marathwada University, Aurangabad has effectively implemented OBE throughout our curriculum and believes in continuous improvement of academic endeavors. We fully understand the vital importance of imparting communication and life skills to our students. Domain skills are complemented with soft skills and this together with knowledge of a foreign language gives our students an edge in the domestic and global market. The implementation of Choice Based Credit System (CBCS) added a new dimension to academics for the students. CBCS provided a learning platform wherein the student or knowledge seeker has the flexibility to choose their course from a list of elective, core and soft skill courses. This is a student-centric approach to learning or acquiring higher education. It is also helpful in building favourable learning environment, as everyone is supposed to take part in learning process as per their ability and competency. The CBCS provides comfort for slow learners as much as it does for fast learners.

### **Performance Benchmarks**

Faculty members of the university have been attending workshops, training programmes, FDP at national and international level, also the faculty members of the university have secured research grants worth more than Rs. 31.27 crore from funding agencies like UGC, DST, CSIR, ICSSR, AICTE, the faculty members and research students of the university have published number of research papers in high H-index journals included in SCI, WOS, SSCI, ABDC and Scopus indexed journals in the last one year.

### **Knowledge Resource Center**

In this digital era, the role of libraries has become more complex and multidimensional. There are various types and services of e-resources, various modern methods/ technique and procedures for effective information retrieval and dissemination and with this, libraries have to improve their services and products to promote their use in productive way. University Library is a well-known and reputed Library in the region of Maharashtra because of its different special features that contribute to knowledge culture. The library is enriched with huge collection and reading materials in different forms and formats. This library is performing as a bridge between the technology and users of technology by making availability and awareness of pin-pointed, exhaustive date electronic information through its variety of resources. The library is having 3, 74,406 print reading materials. However, in the year 1971 the library introduced reprographic service to achieve the objective of Dr. Babasaheb Ambedkar Marathwada University Library. In socio-economic development of Marathwada region and to supplement formal education with reading material, its library known as Dr. Babasaheb Ambedkar Marathwada University Library, was established to undertake the responsibility of providing reading by organizing and storing for its maximum use by its readers. Dr. Babasaheb Ambedkar Marathwada University Library is the biggest University from the point of view of the strength of books and its services. It has occupied a central position in the socio-economic, cultural and educational development of the people of Marathwada region. The importance of this Library lies not only in its large collection of 3,26,450 books and its periodicals, but its collection has certain peculiar feature. The priceless treasure of a large number of manuscripts, covering a wide range of

subjects i.e. Literature, Social science, Philosophy, Arts, Photographs and Painting, gives it a place of pride. A well-housed and well-managed library is the foundation of modern educational structure. To keep pace with the ever-expanding field of knowledge the library is being updated from time to time.

The Library is having huge collection i.e. 3,67,604 varieties of print resources, It consists 4641 Ph.D theses and 45,000+ back volumes of periodicals. Apart from that library is subscribing National and international 200+ print peer review journals. library gives remote access facility of E-Resources to Ph. D students, faculty, and affiliated colleges by using Knimbus remote access tool. INFLIBNET gives access of URKUND antiplagiarism software to Dr. Babasaheb Ambedkar Marathwada University Library, Aurangabad. Library is going to apply preventing plagiarism software to maintain the style of writing and to avoid copy paste practice by the researcher. Majority of the manuscripts (4000+) are of Mahanubhav Panths and available in Sakal Script, however 200+ manuscripts of Devi Strotas are written by Raje Shamraj Rai Rajwant Bahadur, Hyderabad is part of library and for the sake of its preservation, it is under process of digitization. All the theses and rare books in library are digitized and available forever in digital format and research scholars and book lovers who wanted to see rare collection can make a good use of digitization without damaging original copies. Around 1000+ rare books 4000+ theses digitized in the first phase users can get this intellectual asset with a single click.

### **Entrepreneurship and Skill Development Cell**

The AEL-Entrepreneurship and Skill Development Centre stands as a monarch of Public-Private approach to provide real-time professional insight among fresh graduates that will make it possible for them to address the exact demands of job sector as well as entrepreneurial challenges. Programs designed by experts of industry domain exactly know what the hour asks for and the Centre is sure to stand as a signatory step of this University for the service of the youth of this region in particular, and the nation, as a whole. To structure the AEL - Dr. BAMU Entrepreneurship & Skill Development Center to be an Epitome of Excellence through impartation of professional and technical skills and creation of Entrepreneurial Ecosystem to enable the youth for addressing challenges of Changing Economic

Scenario, keeping Quality Training at its core, for 'Anyone' at 'Anytime' and 'Anywhere'. To provide a platform for rural students socially disadvantaged and differently-abled groups to achieve Academic Excellence with in-built Employability and carve out a fusion between Academics and Industry with an ultimate aim to identify the gaps and accordingly, design the courses to impart skill-based education as per the requirements of the region so as to improve employability and develop entrepreneurial capabilities also to provide student centric learning environment and to establish platform for inclusive research leading to the development of entrepreneurial thought process amongst research scholars keeping in mind societal needs, Nurturing innovative ideas shaping into products facilitating the spinoff and creating awareness to protect Intellectual Property (IP) and to adopt a perennial process for bringing in excellence in teaching pedagogy by providing ICT based state-of-the-art infrastructural facilitation also impart value added, culturally rich education by adopting the local to global approach and to provide an academic corridor for cordial connectivity between the University and its affiliates and to ensure good Governance inculcating 'Accountability' based on 'Self-evaluation' amongst all the stakeholders of the University.

Courses Offered By AEL-ESD are Certificate Course in Managerial Skill Development and Entrepreneurship as today's entrepreneur has to operate a business, take risks and reap the rewards that come with owning a business. Certain skills of an entrepreneur are fossilized prominently. However, future next generation entrepreneurs are required to have distinguished management skills for a remarkable status on a socio-economic platform. This Course has been designed to develop managerial skills in graduates to address challenges of immediate employment as well as entrepreneurial ventures with primary training domain encompassing Purchase, Taxation, Govt. Compliances, Accounting in SAP Environment, Management Reporting Process, Audit, Compliance Management, Marketing, Production, Quality Control, Operations, Store Keeping, HR aspects, and Personnel Department Acts etc. Certificate Course in Mechatronics and Industry 4.0 as Industry 4.0 has the potential to solve long-standing, real-life issues associated with industries with focus on the transformation of industrial processes through the integration of modern technologies such as sensors, communication, and processing technologies

such as Cyber-Physical Systems (CPS), Internet of Things (IoT), Cloud Computing, Machine Learning, 3D printing, and Data Analytics. In order to cater the immediate necessity of trained manpower in industries, and S&T organizations that are going through paradigm shift in manufacturing and process architecture with aid of these cutting age technologies, this course has been specifically designed with core areas of technology that includes Analog and Digital Electronics, Industrial Automation, Smart Sensors, Robotics including Collaborative Robotics, Mechatronics, Industry 4.0 etc.

### **Technology Business Incubation Center**

#### ***Atal Incubation Centre and Bajaj Incubation Centre***

The university has two incubation centres first amongst them is Baja Incubation centre which is a collaborated activity of Baja Industry Pvt Ltd and University the second is Atal Incubation. The incubation centres are nurturing innovative start-up businesses in their pursuit to become scalable and sustainable enterprises. The centre plays crucial role in hand holding of bright ideas from students, lecturers, professors, researchers, grass root innovators as well as individuals from Marathwada region to create competitive market ready and sustainable start-ups and business of tomorrow. Through its state of the art infrastructure, University Research Centers are nurturing the ideas of startups through Panel of eminent mentors from Industry and Academia. The centre will ensure security for the incubatee start-ups, to enhance their chance to succeed. It will enable entrepreneurs to seek seed and growth capital from various government, non-government funding agencies, HNI's, Angel investors and Venture Capital Firms. The centre helps entrepreneurs to identify potential in their innovation, protect them under IPR law framework and provide access to markets. It is working towards creation of world class start up ecosystem right here in the region of Marathwada with Infrastructure for offering startups 10,000 Sq.ft of state of the art floor space with beautiful Landscape Garden and Reception area, the Work Stations, Pre Incubation block, dedicated incubatee rooms with 24X7 access and physical security there is dedicated desktop for each start up with high speed internet connection and Wi-Fi enabled campus. it also has well equipped conference room with OHP, video-conference room, meeting room, pantry, proof or concept lab Prototyping

and Fabrication Lab, Inhouse Library, IPR Cell, Market Research, Industry Academia Interaction Cell with Existing Industry Relationship Accounting and Administration Block within house Photocopy , Scanning Printing Equipment Access to Auditorium Facility with Stall Foyer for Exhibits. Incubated Start-up like NU TECK Innovations, Aurangabad Manufacturing liquid which helps to save fuel, reduce harmful pollution, reduce engine knocking, reduce maintenance cost, smooth engine running, helps in complete burning of fuel, smooth engine Running. Advantage Group device capable of covid-19 screening process like check oxygen & temperature level, mask detection (AI), hand sanitization, decode iris data for person authentication and distance detection, Rialtoin Pvt Ltd Online platform where details of political parties and candidate will be displayed. ProGenius – Pavement Solution Pvt. Ltd To repair road issues by using innovative machine technology. The university incubation centres Atal Incubation and Bajaj Incubation centre has 65 startups with 10 crores of funding. It is the highest amongst the university incubation centres across the region.

### **Hostel Accommodation**

For students enrolled in various programmes, the university offers on-campus residential accommodation to the students. Ours is one of the greenest Campuses' in the country with all the facilities that are expected from global Universities. The stay at our campus provides a wealth of experience by developing qualities such as social responsibility. Our students compromise a cosmopolitan mix from all parts of India as well as many countries across the globe.

As far as possible, the university caters to the housing needs of most of those students coming from rural areas. Admission into the hostels is strict as per the available accommodation and no guarantee of admission is given to every student.

### **Social Commitment**

During the COVID-19 pandemic, University has established 02 COVID-19 Testing Laboratories on the University Campus at Aurangabad and University Sub-Campus at Osmanabad. The lab tested the patients and supported the district admission during the pandemic and still, these labs are working on the research in the new variants of the COVID. Apart from this, the university is having rich flora and fauna,

and old trees which have developed the campus as the oxygen hub. The university has developed Miyawaki kind of garden along with a yearly plantation on the surrounding hills. Many citizens take a morning and evening walk on the campus due to this greenery.

**National Service Scheme** of the university has played a crucial role in nurturing the social commitment of the students. It is also sustaining the rural-urban relation with adopting villages under Unnat Bharat Abhiyan, Jalyukt Shivar, an initiative of Government of Maharashtra to eradicate the drought from the state. The NSS volunteers with the training provided to them by NDRF are actively participating and helping the NDRF during disasters. NSS Volunteers participate every year in Republic Day Parade; this has proven the capacity of the unit in its social commitment.

### **E-governance Initiative**

The concept of digital India is part of the university system. Since the Government of India initiated digitization of public utility services the university adopted it with zeal and provided most of its student-centric facility on digital platform. The student and stake holders of the university can access the university facilities through university's website and get the formats required for the administrative work. A few glimpses of the digital are as follows:

### **Online File Tracking System**

While we have come a long way over the past 50 years in terms of academic excellence, we cannot remain oblivious in catching up with the technological trends in governance, administration and management," the file-tracking system has been developed by the University Network Information System (UNIC) under the e-governance initiative. "modest endeavour of putting in place a hassle-free mechanism where a stakeholder who submits a particular file at least gets to know about its status and progress". "The current location of a file/case can be located just by searching through the unique file number. Reminders to the respective sections can be also sent by the originator of the file by asking about its status and expediting the same. Further, sending circulars/notifications will be done digitally through the same system," Leave Management This online Leave Management System (LMS) is one of the new initiatives taken by our University. This e-Governance initiative towards digitalizing its

services with a focus on decreasing the paper work, brings transparency in maintaining the records. The main focus of this online system is to bring down the time delay in leave application and approval. It also enhances transparency of leave records for the access of the employee anytime and anywhere in the world. Online Foreign Student Admission Foreign students seeking admission at Dr. Babasaheb Ambedkar Marathwada University, Aurangabad or affiliated colleges of University need to apply online for the specified course and by uploading requisite documents for the same. The hardcopy of the application along with statement of purpose, recommendation letters, and other documents duly attested is to be sent by post to the Director, "Foreign Students Assistance Cell" Dr. Babasaheb Ambedkar Marathwada University, Aurangabad (M.S.) India. After screening the documents and as per the eligibility criteria by central admission committee, if found suitable then provisional admission will be granted in absentia, based on the available seats and merit of the student. The campus has 400 international students from various countries across the globe.

### **Online Academic and Administrative Audit of Colleges**

The Authority of University conducts Academic Audit of affiliated colleges through an Academic Audit Committee as provision of section 117(1) and (2) of Maharashtra University Act 2016 narrated that to inspect the Academic and Administrative standard of Affiliated colleges. For this audit software is developed by the UNIC section of the university which has nurtured a paperless activity of academic audit.

### **Model Degree College**

Government of India has been taking positive measures for expansion of Higher Educational Facilities to ensure that achieves the average Gross Enrolment Ratio (GER) in Higher Education. This college has financial assistance from Central Government and states government. The Model College, Ghansawangi is one of the constituent college of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad started in academic year 2011-12. The main objective of the model college is to enhance the access to degree courses in EBDs of the country, so as to achieve expansion in higher education with inclusion, equity and quality. This college will definitely be rated among the top educational institutes of Maharashtra. The college



is making efforts to develop a technological quality graduates which are currently required in industries. Students joining the Model College, Ghansawangi will have exciting experience of learning and research-based projects. The graduates passing from this constitute college of the university will not only be able to get the job but will also serve as job providers.

### **Santhpeeth**

It is one of the vital institutes run by the university with its aim at looking towards handing over the traditional and spiritual knowledge to the learners who are willing to carry the torch. Government of Maharashtra has allocated this responsibility to the university. The certificate course in Warkari sect, Mahanubhav sects, literary works by the Saints and traditional spiritual music is imparted in a scientific ways to the learners and the course is designed by the university with support of the expert in the field, a collaborative effort in developing Indian knowledge system and it is the contribution of the university in the Indian Knowledge System. The Santhpeeth is situated at Paithan close to Jaikwadi Dam, ecofriendly ambiance helps in nurturing spirituality. It is expanding its horizon to international stature with international students are participating in the course.

### **Earn & Learn Scheme**

With a view, to give to some extent, the financial help to poor and needy post graduate students of various P.G. University Departments, who are desirous to undertake P.G. Education but are deprived due to their poor conditions, the university has been implementing 'Earn and Learn Scheme' for such students since long, in the beginning this scheme was taken up with very limited scope of funds as the university has started this scheme on its own financial resources. But during this period of time, there has been much expansion. This scheme took its shape especially after sanction of the change of name of the university to Dr. Babasaheb Ambedkar Marathwada University. The university prepared an action plan to undertake deferent schemes/project for the poor and needy students. This special grant made Earn & Learn a self-sufficient scheme for the future years. The different activities and projects are worked out and are being implemented very successfully with considerable financial income. Drawing 3000 Rs. per month and helping the administration in office work in different sections of the University and making the required stationary getting skill of making file pads and

pockets. The students get acquainted with the making of wormmicompost, RO water plant and sanitary pads. The students working in Earn and Learn are drawing 100/- Rs. per day working for two hours.

### **Cultural Activity**

The extracurricular activities are taken care of by the different cultural events. The university has various events like Youth festival, lecture series and workshops. Almost 3500 students participate in the youth festival every year. The AIU has listed the events for Youth festival, apart from this, the university has 15 folk events where the students participate, preserve and promote Maharashtra's folk. It is the responsibility of the university to groom students with different workshops for cultural activities, the university has 09 workshops and 12 lecture series which develop the sensibilities of the students. Yuva Mohastav, Tatva, Utkarsh are the cultural events along with research competition known as Avishkar. This events helped the students to have a professional approach in the cultural fields and resulted in giving them a chance in the television and film industry. It is the contribution of the cultural events of the university towards providing skilled artists to the film industry.

### **Sports**

The university has a huge sport complex with athletic track, football stadium, swimming pool, basket ball court, lawn tennis court, Indoor badminton and table tennis court and coaches for training the students. The Sports Ministry of Government of India has financially supported the university to convert the athlete track into synthetic track. The infrastructural facility has supported the students to be part of the different leagues, like Kabbadi, Kho-kho and cricket. The university has various sports festivals to promote the sports culture amongst the players who are willing to be part of sports world. Participation in Khelo India has proven the capacity of the sports centre of the university.

### **UGC- Human Resource Development Center**

The UGC- Human Resource Development Center is situated in the University Campus, adjacent to Humanity Building. Our UGC-HRDC has contributed to its catchment area i.e (Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, Kavayitri Bahinabai Chaudhari North Maharashtra University Jalgaon and Swami Ramanand Teerth

Marathwada University, Nanded ), In its catchment area the center has over 1200 affiliated colleges and more 15,000 thousand Assistant Professor, The center organized on regular basis Orientation Programmes (OPs) for all new entrants at the level of Assistant Professor and advanced level and more discipline oriented Refresher Courses (RCs), Short term Course, a workshop for administrative staff and workshop ‘for principals, Since its inception from the year 1987, this UGC-HRDC has organized 132 Orientation Programmes with 6200 number of participants, 400 Refresher Courses (RCs) with 15001 number of participants and 59 additional courses with 3750 number of participants.

### **Strong Alumni**

Dr. Babasaheb Ambedkar Marathwada University has an extensive list of registered alumni who occupied very important positions like doctors, industrialist, Politicians, diplomats, entrepreneurs which includes Sukhadeo Thorat, Nirupama Rao, Ravindra Gaikwad, Madhusudan Manikrao Kendre, Chandrakant Kulkarni, Janardan Waghmare, Waman Kendre, Dr. Bhagwat Karad, Mr. Imtiaz Jalil, Sunil

Gaikwad, Dr. Tatyrao Lahane, Makrand Anaspure etc.

### **NEP Initiatives**

The university has taken initiatives in implementing New Education Policy with changes in the curriculum and technology. It has promoted to use of the digi-locker and more than 3 lakhs degrees and documents have been uploaded. The examination has been fully supported with technology as the question papers are sent online and the evaluation is taking place on the screen. University has successfully planned to implement the four-year degree courses as categorized by the NEP. It is the effort of the university administration through workshops in different colleges to motivate the stakeholder of the university to understand the NEP.

With the entire academic and research facilities the tranquil campus of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, with a bounty of nature at its divinity, waits to embrace all enthusiasts for knowledge.

□

## **The Association of Indian Universities**

The Association of Indian Universities (AIU), is one of the premier apex higher education institutions of the Country established in 1925. It is a research-based policy advice institution to the Government of India in the field of Higher Education, Sports, and Culture. Since its inception, it has been playing a vital role in shaping Indian higher education. Most importantly, AIU is vested with the power of according equivalence to Degrees/Qualifications offered by the universities across the world with those offered in India. AIU has also been mandated by the Department of School Education, Ministry of Education, Government of India to accord equivalence to the Indian Boards for the Secondary/Senior Secondary Examination vide Gazette Notification. AIU is a think tank body with the responsibility of undertaking academic activities such as: conducting Research Studies in higher education; acting as the bureau of information on higher education; liaising with international bodies and universities for the internationalisation of Indian higher education among many others. AIU conducts inter-university sports and cultural events at national and international levels. As a National Sports Promotion Organization (NSPO) it promotes sports among Member-Universities and maintains the standards in sports.

Being an apex advisory institution, it constitutes an integral part of all major decision-making committees and commissions in the country. As a representative body of Indian universities, it facilitates cooperation and coordination among Indian universities and liaises between the universities and the Government (Central as well as the State Governments) and also National and International bodies of higher education in other countries in matters of common interest. Whereas all the Indian universities benefit from its contribution, at present it has a membership of about 898 universities including 14 overseas universities from other countries viz. Bhutan, UAE, Kazakhstan, Mauritius, Malaysia Nepal, as Associate Members.

Some of the legends among many, who served AIU as its Presidents are Dr. Sarvepalli Radhakrishnan, Dr Zakir Hussain, Dr. Syama Prasad Mukherjee, Dr K L Shrimali A.L Mudaliar, Dr Akbar Hydary, Prof A C Woolner, Pandit Amarnath Jha, Sir Maurice Gwyer, Dr K L Shrimali, Prof Shiv Mangal Singh ‘Suman’, Prof M S Gore, Prof M S Adiseshiah, Prof M S Valiathan.

# Evaluation Reforms for Transformative Higher Education

Upinder Dhar\* and Santosh Dhar\*\*

Education is fundamental for achieving full human potential, developing an equitable and just society, and promoting national development (NEP 2020). Amidst the rapid demands of constant change put forth by a globalized economy, higher education in India is going through a transformation. Parameters of testing and assessment need relook and reorientation to create the next generation of knowledge workers (UGC, 2019).

The review of the current system of examination in higher education makes us believe that we are in general continuing with the summative term-end written examination that has serious limitations and therefore, not a dependable measure of the cognitive and affective abilities of learners. It is also widely perceived as a test of memory, thus unable to assess higher-order abilities. Examination in its current form induces anxiety and has been seen as a source of stress, thereby preventing the learning process from being a pleasant experience. The current system of examination is punitive in nature rather than diagnostic, remedial, or improvement-oriented as it does not provide credible feedback to the learners right in time to enable them to take corrective measures (Butt, 2021).

Further, it does not encourage learners to gain new knowledge through active participation in the process of learning and knowledge creation. The assessment methods need to be scientific to pave the way for continuous improvement in learning while testing the application of knowledge. The solution to overcome the limitations of the summative semester-end written examination lies in the proactive teaching-learning system. The salient features of the system include continuous, comprehensive and learning outcome-based assessment. The assessment is done not at the end of a term only, but continuously by employing diverse assessment methods like class tests, presentations, case studies, games, role play, project work, and library assignments.

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The proactive system is fundamentally a learning outcomes-based assessment that facilitates learners to acquire new knowledge and develop certain life skills like social, emotional, and communication skills and critical thinking. Besides this, the tests used in the proactive system are conducted in a relatively informal and non-threatening environment, which enhances its pedagogical value. The focus is not entirely on the assessment for formal certification but also to accomplish the overall growth and development of a student. It continuously assesses the progress of learners and can provide them feedback for making improvements right in time.

By nature, it is diagnostic and remedial rather than punitive like the summative system of assessment. The proactive system takes care of the heterogeneous nature of classes wherein some students are bright and very much interested in their studies, some have average intelligence and require mild push by the faculty, and some are below average or have less interest in studies and therefore, require greater attention of the faculty. The students can be assessed continuously to identify the students who need greater attention with the purpose to facilitate them to improve their learning.

The current system of examination promotes using the same pattern and type of question papers across all disciplines. Sometimes, it is quite illogical to have the same pattern of question papers across all disciplines and courses when many of them are quite different from each other. The assessment methods, based on learning outcomes, are bound to differ from discipline to discipline and even from course to course. The pattern of question papers used currently aims to assess academic knowledge only, while promoting rote learning which in turn restricts the role of assessment. It is based on the question paper, which tests only memory recall as a skill. The way a question paper is set reflects the academic caliber of the institution and its faculty.

The dependence on answering the term-end examination based on a question paper puts forward flaws of the single nature of assessment, as the

majority of marks are dependent on performance at the term-end examination. Thus, the performance assessed under the existing system is not given much weightage by employers and even by higher learning institutions where admissions in professional programs are preferably based on the entrance tests instead of the marks awarded even by the same university. In several instances, the university-certified degree holders are subjected to another written examination before they are accepted for jobs in public or private sectors, believing that the students enrolled in higher education are not passing out with the desired level of knowledge and expertise.

The existing pattern of question papers limits the flexibility to test higher-order abilities of the learners because it is generally designed to test theoretical knowledge given in the textbook rather than competencies, applications, analysis, and synthesis of knowledge. Additionally, the frequency of the repetition of identical or similar questions year after year is likely to be high, thus, directly or indirectly feeding the pseudo-coaching centers. The continuous and comprehensive assessment methods of the proactive system solve such problems because the pattern of question papers is based on learning outcomes. Thus, it varies from discipline to discipline, even within the discipline, and from course to course. Generally, faculty uses a combination of assessment methods depending on the nature of the course.

The current summative semester-end written examination also lacks transparency and accountability, thus, resulting in more complaints and more grade appeals. At the same time, making a grade appeal costs a student irrespective of the fact that he or she has every right to see whether marking is fair or not. Besides, being centralized, the grade appeal system is time-consuming and a costly affair for the students, which ends up in poor student satisfaction. Many a time, the quality of question papers also comes under scrutiny, as often questions are found either wrong or out of syllabus, or simply downloaded from the internet.

Contrary to the summative semester-end written examination, transparency and accountability are the hallmark of the proactive system of evaluation. This system advocates that faculty have to return

answer books to the students to fulfill their right to see whether the answers have fair marking or not. A student has the right to question the marking if he or she feels to have not been given due marks. The faculty is expected to justify the marks awarded to the answers and convince the student in an adult-to-adult interaction.

This system of transparency and accountability on the one hand results in greater confidence and student satisfaction and on the other hand, in greater accountability of faculty. The net outcome from this is greater efficiency of the system. One good news is that some universities in the country have already adopted the continuous evaluation system, and the feedback is very positive.

The present machinery of conduct of end-term examinations exerts significant pressure on affiliating universities due to the large number of examinees. The question papers, which are set, have to be printed and sent to various examination centres, which are at a distance requiring huge logistics support to ensure that the examinations are conducted simultaneously. The answer books of the students are then transported to designated centralized assessment centres. The marks of each subject received from the designated evaluation centres must be integrated into the mark sheet of each student, thereby requiring accuracy and completion in a limited time to facilitate the timely declaration of results.

The difficulty of overloading affiliating universities in the country will be overcome as soon as the recommendation of the National Education Policy 2020 to scrap the affiliation system is implemented, and the examination system is likely to be more efficient and robust.

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# National Education Policy—2020 and Evaluation Reforms in Higher Education: Envisioning Transformation for 21<sup>st</sup> Century India

Ratikanta Senapati\* and Sunil Kumar Singh\*\*

*“For teachers, as for students, the most effective evaluation comes from someone who sits beside us and helps us to grow”- The Evaluation of My Dreams (Carol Ann Tomlinson, 2012)*

Higher Education (HE) has a remarkable place in the process of social, political, and economic change in any country. In India, the demand for higher education is rapidly increasing along with the challenges like retaining quality, sustenance, and ability to compete with global standards. The focus of the Indian higher education system for a long time was on establishing higher education institutions (HEIs) to give the opportunity to the students to graduate and seek jobs (Sharma, 2020, p. 1). This has led to a massive increase in the number of HEIs and the number of students going for higher education. However, the foremost concern is not just quantitative growth, but ensuring that the students are equipped with 21<sup>st</sup>-century skills (NEP-2020, p. 30). Integration of the 21<sup>st</sup> century skills like creative thinking, problem-solving, research, and creativity in higher education for the holistic development of learners, is the need of the hour (Senapati & Singh, 2023, p. 31). The new National Education Policy (NEP) 2020 also intends to transform the present higher educational institutions (HEIs) into holistic and multidisciplinary institutions (p. 31). To achieve it, there needs to be a transformation in the current pedagogy and curriculum. Transformative Pedagogy individualized contextual experiences and the intellect of the learner will be used to develop fruitful holistic thinking in them whereas a multidisciplinary curriculum is one in which the same topic is studied from the viewpoint of more than one discipline (Singh & Senapati, 2022, p. 24). Therefore, the higher education system should focus on more learner-centric approaches and be in pursuit of constant improvement in quality. For this, a strong system

should be built to take care of the needs of HEIs and maintain their quality. As per the University Grant Commission (2019, p. 10) a strong evaluative process in higher education systems can play a pivotal role to increase its quality and effectiveness. Evaluation is the process by which value judgments about the educational status (Regulatory) or achievements of students (Academic) are formed (Prakash, 2016, p.2). Sharma (2020) states the regulations of HEIs can be done by Accreditation agencies like the National Assessment and Accreditation Council (NAAC) and the National Board of Accreditation (NBA). Since this paper is confined to educational testing, examinations, assessment, and evaluation, hereafter use of evaluation relates to the academic achievement of students only.

One of the main purposes of evaluation is to provide development-inducing feedback that helps the teacher to plan appropriate activities for enhancing student performance (Aithal & Kumar, 2016, p. 652). The qualitative dimension of evaluation must focus to enhance the competence level among students. The University Grants Commission (UGC) has taken various initiatives to bring in academic reforms in the Higher Education Institutions in India. Evaluation Reforms is one of the major tasks initiated in this direction. However, some limitations in the current system have made the need for reforms in the evaluation system relevant. Therefore, provision for an Innovative evaluation process in higher education systems is the need to measure the knowledge and skills acquired by the students at various levels of their courses/ programmes. As evaluation linked with Learning Outcomes, Institutional goals, teaching pedagogy and learning methods; Parameters of testing and assessment need to be relooked and reorientated by using innovation and technology so as to create the intended learning outcomes (UGC, 2019, p.7). Also, by using technology and innovation a new format of evaluation framework/tools need to be developed to assess the requisite skills that are essential for the students who have enrolled in higher education

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programmes. This paper discusses current issues in higher education evaluation and envisions a better system that led to a more skill and competencies-based evaluation. This paper also proposes reforms in the current evaluation system to make it more meaningful and learning outcome based.

### Evaluation Issues in Higher Education

To increase the efficiency and effectiveness of the higher education system, both government and

HEIs must first give attention to the current issues related to the assessment of teaching, learning and evaluative processes. Based on the review of UGC Documents ‘Evaluation reforms in higher educational institutions (HEIs)-2019’ and Articles of researchers such as Singh (2015) and Aithal & Kumar (2016), the following issues related to higher education evaluation have been identified. These identified issues have been summarized in Table-1.

**Table-1: Evaluation issues in Higher Education (HE) in India**

Areas	Identified Evaluation issues in HE
No Standardized Evaluation system	A great degree of diversity has been observed in terms of assessment and grading of the students in the higher education system. A concerted debate has been going on to determine the best system of assessment to be followed by the Universities in the 21st century. It is desirable that a certain optimum degree of standardization in the examination system and in the assessment of students is put in place before grades are awarded to them.
Emphasis on Memorisation Only	The examination pattern that currently exists in university structure, test memory learning. The term-end examination is usually based on the question paper which tests only memory recall as a skill. This system, more often than not, insulates students from the quest of knowledge, excitement of discovery and joy of learning.
Mis- management of Examinations	The machinery of conduct of the end of term examination exerts tremendous pressure on universities due to the large number of examinees. From printing of question papers to declaration of results, timely required planning, cooperation, execution, supervision and logistics support so that examinations will be conducted smoothly. Despite all the efforts from government, universities and boards, problems like leakage of question paper, mishandling of answers scripts, mismatch of roll number, errors in marking and totalling, awarding of grace marks, wrong declaration of results are seen very often. Also, most of the examining agencies still appear to be technology-shy and are hesitant in adopting the latest techniques of computerisation and optical scanning.
Needs reforms in Curriculum	To make the evaluation more relevant to professional requirements and international norms reforms in current course curriculum and learning pedagogy needed. Also, students should not be given only an overall grade but should be given subject-wise grades. Only subject-wise grades would enable the teacher to know the exact level of achievement of a student in various subjects and disciplines which would improve their employability.
Less focus on Continuous Comprehensive Evaluation (CCE)	Often the annual examination along with marks, percentages and division leads to insensitive cramming up of superficial discreet information. Thus, with very little focus on CCE during the teaching-learning process, it renders all emphasis on the final examinations orienting all teaching and teaching pedagogy towards preparing students to work towards getting better marks.
Exam as the cause of fear and tension	The current examination form creates psychological fear, stress, anxiety, and tension among the students. Under distress, the students resort to all kinds of malpractices to pass the examination which impacts their credibility.
Over Emphasis on External Examination than Internal	The ability of a student is decided by the end of the term (semester/annual) examination; hence scoring more marks in this final examination is the only aim of the student. The existing system does exert undue stress on the students as they have to score higher to pursue a job or higher education career. It encourages the selective study and cramming, the use of easy notes, and discourages the habit of regular work, the use of good textbooks, and innovations.
Other Quality Issues	Other issues like quality question papers, quality of term-work assessment, holding of fair practical examinations, Exam Schedules, Quality of Answer Script Evaluation, Shortage of qualified examiners, Delays in paper correction, Discrepancies in the handling of transcripts, Manipulation of scores, Award of grace marks, Delays in results processing and declaration, Handling of re-evaluations also hampers the quality of current higher education.

## NEP-2020 and Evaluation Reforms in Higher Education (HE)

The National Education Policy 2020 (NEP 2020), which was approved by the Union Cabinet of India on 29 July 2020, outlines the vision of India's new education system. The policy is a comprehensive framework for elementary education to higher education as well as vocational training in both rural and urban India. As per NCERT report (2021) 'Assessment Reforms: Background paper for Teacher's fest' NEP-2020 emphasizes transforming assessment for optimizing the learning and development of all students with a focus on (1) being regular, formative,

and competency-based, (2) promote learning and development of students, (3) focus on 'assessment for learning' and (4) test higher-order skills (analysis, critical thinking and conceptual clarity etc.). Thus, we can say that as per NEP-2020, the purpose of evaluation can be summarized as continuous and comprehensive evaluation; a standards-based grading system. It provides a major opportunity for key educational stakeholders to enact the major reforms and implementations in lieu of the policy that shall bring highest quality, equity, and integrity from primary to higher education. The recommendations given by NEP-2020 serve as a useful guideline in

**Table-2: Provisions in NEP-2020 about Evaluation Reforms in Higher Education (HE)**

Areas of Reforms in HE	NEP-2020 Provisions
Optimal learning environments and support for students	<ul style="list-style-type: none"> <li>• Institutions and faculty will have the autonomy to innovate on matters of curriculum, pedagogy, and assessment within a broad framework of higher education qualifications.</li> <li>• All assessment systems shall also be decided by the HEI, including those that lead to final certification. The Choice Based Credit System (CBCS) will be revised for instilling innovation and flexibility.</li> <li>• HEIs shall move to a criterion-based grading system that assesses student achievement based on the learning goals for each programme.</li> <li>• HEIs shall also move away from high-stakes examinations towards more continuous and comprehensive evaluation.</li> <li>• Each institution will integrate its academic plans ranging from curricular improvement to quality of classroom transaction - into its larger Institutional Development Plan (IDP).</li> <li>• Norms, standards, and guidelines for systemic development, regulation, and accreditation of ODL will be prepared, and a framework for quality of ODL that will be recommendatory for all HEIs will be developed.</li> <li>• All programmes, courses, curricula, and pedagogy across subjects, including those in-class, online, and in ODL modes as well as student support will aim to achieve global standards of quality.</li> </ul>
Institutional Restructuring and Consolidation	<ul style="list-style-type: none"> <li>• A holistic and multidisciplinary education would aim to develop all capacities of human beings -intellectual, aesthetic, social, physical, emotional, and moral in an integrated manner. Such holistic education shall be, in the long term, the approach of all undergraduate programmes, including those in professional, technical, and vocational disciplines.</li> <li>• Imaginative and flexible curricular structures will enable creative combinations of disciplines for study, and would offer multiple entry and exit points. Curricula of all HEIs shall include credit-based courses and projects in the areas of community engagement and service, environmental education, and value-based education.</li> <li>• The undergraduate degree will be of either 3 or 4-year duration, with multiple exit options within this period, with appropriate certifications, e.g., a certificate after completing 1 year in a discipline or field including vocational and professional areas, or a diploma after 2 years of study, or a Bachelor's degree after a 3-year programme. The 4-year multidisciplinary Bachelor's programme, however, shall be the preferred option.</li> <li>• An Academic Bank of Credit (ABC) shall be established which would digitally store the academic credits earned from various recognized HEIs so that the degrees from an HEI can be awarded taking into account credits earned. The 4-year programme may also lead to a degree 'with Research' if the student completes a rigorous research project in their major area(s) of study as specified by the HEI.</li> </ul>

taking an important step toward evaluation reforms in India higher. These recommendations have been discussed in Table-2:

(Developed on the basis of the Source: National Education Policy 2020, retrieved on August 10, 2021)

### **Envisioning Transformation of Evaluation System in Higher Education for 21<sup>st</sup> Century India**

After analysing documents like NEP-2020 and the UGC-Quality Mandates, here are some suggestions concerned with reforms in the evaluation system in HE.

#### ***Outcome-Based Education (OBE)***

- The concept of OBE stresses the importance of demonstration of learning outcomes by students rather than just attaining marks in the examination. Under OBE, each student is expected to achieve a particular goal by the end of the academic period.
- OBE starts with a clear statement of what knowledge, skills, and attitude a student will be able to demonstrate in a clearly measurable way, as having acquired on the successful completion of the programme.

#### ***Objectives and Model of Examination System***

- Learning Outcome Based Education (LOBE) Framework needs to be implemented at HEIs to structure and link evaluation right up to Institutional goals. LOBE is a dynamic and flexible framework, which allows HEIs to design their institutional-specific program educational objectives.
- Program Learning Outcomes lead to the identification of competencies and from competencies, one may derive multiple indicators or measurable components to assess competencies objectively. It also led to the design and development of a curriculum containing multiple courses with specific objectives.
- The attainment of Program Education Objectives, Programme Learning Outcomes, and Course Learning Outcomes may be worked out at the university/institutions level for each programme.
- Certain optimum degree of standardization in the examination system and in the assessment of students is put in place before grades are awarded to them.
- Evaluation must be continuous to include both

formative and summative components in a timely fashion for continuous feedback.

#### ***Moderation***

- Moderation at different stages like paper setting, assessment, re-assessment, post-evaluation should be mandatory and make it fair, trust-worthy and transparent.
- Over-all procedures adopted to maintain quality and standard of assessment and evaluation system should be revisited every 2-3 years. An Examination Reforms Cell at HEI level and an Examination Reforms Committee (appropriate nomenclature can be used) at the state level can be set up for this purpose.

#### ***Grading and Credit Transfer***

- Ensure a minimum program-wise uniformity in all HEIs w.r.t. a number of Course Credits (for Core, Elective etc. courses) and Total Credits at UG & PG levels to facilitate smooth credits transfers (Refer to latest UGC guidelines for UG: [http://www.ugc.ac.in/pdfnews/8023719\\_Guidelines-for-CBCS.pdf](http://www.ugc.ac.in/pdfnews/8023719_Guidelines-for-CBCS.pdf)). For the computation of Grade, Grade Points, SGPA, and CGPA same guidelines are to be followed.
- Some uniformity in the broad topics in courses in the first, second, and third year in each major degree programs in all HEIs (with some flexibility) can ensure smooth credit transfers, and hence horizontal mobility, for the students between HEIs.
- The optional subjects which normally have nominal credits may be considered for transfer of credit, though those optional subjects are not offered by the receiving university.
- Absolute Grading is followed in most of the HEIs in which grading is used, Relative Grading system will be fairer to the students and may be followed in unitary.

#### ***Internal Examination (IE) and External Examination (EE)***

- Most suitable combination of IE and EE for comprehensive and continuous evaluation and assessment of the students can be evolved by the HEIs. The proportion of IE and EE should be specified for UG as well as PG levels: and should be flexible to some extent for programs of different natures.



- Internal Evaluation should be such that it will not cause undue stress and pressure on students. The system of IE should be objective, student-friendly, transparent, and free from personal bias or influence. The results of IE should be made known to the students soon after the IE.
- Proportion of IE and EE should be specified for UG (e.g., 30:70) as well as PG levels (e.g., 40:60). Proportion of IE can be low to start with. It can be raised progressively in a phased manner to 50% depending on the outcome of the experience. For high-ranking HEIs, it can be higher (say 50:50 or 60:40).
- Internal assessment must be graded on a relative, not an absolute, scale and must be moderated and scaled against the marks obtained in the external exam.
- Candidates are not permitted to leave the exam center in the first ninety minutes, and even thereafter not permitted to carry the question papers out with them.
- Transmission of question papers (QPs) directly to the centers through the internet just before the commencement of the examination in a safe manner should be introduced

#### ***Result in Declaration***

- Declaration of results is a crucial element of the educational system of a HEI on which rests its credibility and reputation. In order to strengthen the process of result declaration it is important to incorporate the features like timeliness of declaration of result, clarity of interpretation of the Result Card, its comprehensive format, accessibility and verifiability, etc.

#### ***Technological Interventions/Technology based Automation***

- UGC can take initiative in preparation of required software for use by HEIs (especially in the areas of registration, seating arrangement, issue of personalized hall tickets, integration of results of internal and external assessment, preparation of final results, calculation of grades etc.). These can be made available to the HEIs to expedite proper implementation of the reforms.

#### ***Question Bank (QB)***

- QB should be prepared Course wise (Core, Elective, Ability/Skill etc.). UGC can take initiative for preparation of basic QBs in major courses/subjects. These can then be adapted by the HEIs. This will ensure some minimum uniformity, quality and standard. The QBs should be sufficiently large and should contain questions under various categories based on learning-outcomes.
- Provision of Ability Test to assess and indicate the abilities of the students. Different levels of practical and on the spot problem solving exercises may be carried out to assess the skill of the students.

#### ***Malpractices***

- To ensure the credibility of the examination system, it is essential to check the malpractices. A fool-proof system like encrypted barcodes, hides the identity of the student (and the center) from not only the examiner but also the exam department employees, may be used.

#### ***National Testing Agency (NTA)***

- NTA will work to offer a high-quality common aptitude Test as well as high-quality common subject exams in science, humanities, languages arts, and vocational subjects, at least twice a year.
- NTA will serve as a premier, expert, autonomous testing organization to conduct entrance exams for undergraduate and graduate admission and fellowships in HE.
- Universities use these common entrance exams rather than having their own entrance exams, thereby drastically reducing burden on students, universities and colleges and the entire education system.
- Individual universities and colleges shall have the liberty to see the value of using NTA assessments for their admission.

#### ***Conclusion***

In India, evaluation plays a pivotal role and is a deciding factor for career choice of students who have enrolled in HEIs. It provides them the ability to pursue the relevant higher qualifications and determine the degree of knowledge possessed. However, Evaluation, in its current form is more of a moment of stress and anxiety for university students. Issues like question paper leaks and other malpractices in script evaluation, fabrication of marks etc. have impacted its credibility. The current evaluation or examination system in colleges and

universities is rigid and tests rote learning rather than focusing on broader skills. Therefore, reforms are much needed to ensure credibility and the outcome of the evaluation system in higher education (HE). There is a need to assess the students on the basis of their application skills or skills of higher ability like analysis, creation, evaluation etc. An ideal Evaluation process should test the learning outcomes, knowledge gained, attitudes developed and skills mastered by a student during an academic programme. It should intend to promote 'student centric learning' by reforming the existing evaluation system in the Higher Education Institutions, with 'continuous evaluation' of students' performance. To ensure evaluation should be more student-oriented than examination-oriented, outcome-based education (OBE) is an important alternative and HEIs may need to implement this as early as possible. NEP 2020 also suggests the purpose of evaluation. The provisions can be summarized as continuous and comprehensive evaluation; a standards-based grading system etc. Therefore, Reforms in examination for all forms of education i.e., formal face-to-face mode, Open and distance learning mode etc., should aim at the overall development of students for 21<sup>st</sup> century skills namely- critical thinking, problem solving ability, right application of knowledge, and maintaining ethics.

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# Self-reflection Journals as the Best Evaluation Tools in Transformative Management Education

Mercia Selva Malar\*

Management education is education that transforms young graduates and young aspirants for a corporate profession into effective and efficient managers. Management education trains the young adults who take up the program to communicate, decide, work in teams, lead, organize, etc., which all need the required skills. Management is an Art, Science, and Profession, requiring practice, scientific knowledge, and professional aspects combined. Management is also said to be knowing, doing, and being. Thus, Management Education needs to transform young adults to be professional managers and conscious leaders at the end of the two-year program. Business schools across the globe follow various practices that help students to be transformed and get them corporate-ready. Business Management faculty members adopt various methods of teaching pedagogy and evaluation patterns as they deem fit to bring about the transformation. Faculty members with the freedom to experiment and explore various methods of teaching and evaluation indeed try all possible forms that can make the teaching-learning process more effective. This article is a case study of the evaluation process using self-reflection journals as a tool in transformative Management education.

## Review of Literature

Self-reflection journaling has been used as a tool for learning, performance improvement, and evaluation according to the literature reviewed. The literature talks about the benefit and limitations. A summary of it is presented here.

### *Self-Reflection Journal in Business Ethics Course*

Business Ethics as a course is being adopted and emphasized in Business Schools after the 2008 global financial crisis. The course despite its importance is often looked down upon by students and neglected by most of them. Students in their young adulthood may not understand the value of the course and its importance and significance

of the course. To improve the effectiveness of the course, the evaluation method needs to be robust and impactful, to bring about the transformation in them. The author has continually adopted for the past three years the use of the self-reflection journaling method as a learning tool and evaluation tool. The students are expected to maintain a physical journal where they would record their ethics-related experiences both of themselves and what they read about corporate in the news. They are expected to give a short description of the incident considered for self-reflection, the ethical/unethical aspect of it, the ethical dilemma involved, the solution through SOLVE IT model, and how they are practicing the MBA oath, personal and social ethics. Further, they are asked to categorise the ethical concern involved from the perspective of the Teleological or Deontological approach and the theories of ethics. They maintain this journal for about three months, the time period of the term. The journal is submitted twice, before the mid-term and before the end term. The journal submitted before midterm is evaluated and feedback is given to the student to improve upon the ethical aspects. End-term journal submission is to give the consolidated assignment mark. The evaluation process has helped students to take the course with all seriousness. The key aspects of ethics are frequently thought about and recorded; reflection gets the key points of ethics deeply rooted in them. The practice of ethics as they are journaling keeps them more tuned to ethics as an integral part of their life. The student response to the ethics journal has been encouraging. They are honest and true in sharing their ethical dilemmas, they choose to share the SOLVE IT process they went through while making an ethical decision. It is encouraging for the teacher to read about the ethical practices they adopted as an individual and as part of society, as well as a future manager. It also gives an opportunity to the faculty to remove some of the confusion or biased understanding of ethics. Those students who dismiss Business Ethics as an unnecessary course in Management education at the beginning of the session, confess that the course is very important and necessary at the end of the course. Thus, self-reflecting journaling is found

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to be a great tool in the evaluation process to bring about transformative management education.

### ***Self-Reflection Journal in Socially Useful and Productive Activity (SUPA)***

SUPA is a field-based course where Management students work with an NGO for 21 days, put their managerial knowledge and skills to practice, and help the NGO in all possible ways to improve and grow. During this field-based course, they spend time with the NGO and carry out the assigned tasks. They get the opportunity to meet the NGO leaders, organize events, create proper systems and procedures, create websites and social media platforms, write content for the NGO, do fundraising initiatives, and also meet the underprivileged. For most of them, this experience is new and life-changing. They are required to maintain a self-reflecting daily journal. The journaling required the following: Interactions with people and the learning from it on leadership and ethics, initiatives and their impact on people, management lessons learned and applied, how UNSDGs are adopted and practiced by the NGO, Problems identified in the NGO & Society, how Conscious Full Spectrum Response Model and Radical Transformational Leadership can bring more long-lasting solutions to the problems, etc. Students systematically record the daily journal and submit it every week. Further, at the end of the 21 days, they summarise the daily journal and consolidate it into a report, on the basis of which they undergo a viva-voce also. The entire process of SUPA and daily reflection journaling has a long-lasting impact on young adults. The self-reflection journaling revealed the commitment students make to contribute to social causes and be involved during the evaluation process. Future managers were found to put to practice their managerial knowledge and skills into practice in their respective NGOs and some of them continue to serve the NGOs in their areas of expertise even after they are out of SUPA. Thus, using self-reflection journaling in SUPA reiterated the transformative education management students must imbibe. Most managers are selfish and profit-oriented for corporate goals. SUPA gives the Management students a holistic perspective of life where they need to be people, planet, and profit-oriented not solely profit-oriented. The self-reflection journaling as an evaluation tool in SUPA has enhanced the transformative nature of

Management education, bringing about a holistic learning experience for the students.

### ***Self-Reflection Journal in Financial Analysis and Reporting***

Financial Analysis and Reporting is a basic course to expose Management students to how corporates record their financial transactions and measure their performance based on the double-entry system of bookkeeping using financial statements. Management education is a program that admits all undergraduate students from arts, science, engineering, medicine, etc. domains, and most of the students have their first encounter with the course. They are caught with a phobia that they can never understand or master the course as they hear the new terms and new rules in recording transactions. The method of self-reflection journaling for learning and evaluation helps to remove the phobia and make the course more personal and relevant and brings transformation in the students. The evaluation part of Financial Analysis and Reporting using a self-reflection journal is an assignment that needs the student to keep all their transactions recorded in the form of a journal (Accounting Journal), which can be later posted to the ledger and then made into a trial balance and final accounts can be prepared for it. Every time a student makes a financial transaction, they are expected to keep the bills in a box to be transferred to the accounting journal. This keeps them reflecting on the accounting golden rules and concepts. The journals are evaluated at the end of the term to see how the student has consistently applied the golden rules and accounting concepts and conventions. As journaling is an assignment with evaluation component students do take it with due responsibility. The impact of the evaluation process using a self-reflection journal is that the phobia is removed and the course is seen as something which is part and parcel of life, the new terms and concepts become more familiar and routine. Thus, the use of the self-reflection journal creates a transformative impact on Management students which is a holistic approach.

### ***Self-Reflection Journal in Cost and Management Accounting***

Cost and Management Accounting is a course that is new to non-Commerce and non-Management students. The self-reflection journal for evaluation

requires the students to read the newspaper involving Cost and Management Accounting concepts and principles, identify and justify all the concepts and principles covered by the news, and create a mind map with primary, secondary, and tertiary levels of branches. The self-reflection journal enables students to read the newspaper with mindfulness to identify the news that involves cost accounting concepts, tools, techniques, processes, and methods. Once they identify such news they work on connecting the news to the concepts and practices of cost accounting using an elaborate mind map that explores to connect all the concepts, ideas, principles, processes, procedures, methods, tools, techniques, etc. that are logically connected to the news. This is an experience that helps students to transform themselves from mere listeners and participants in the class and to consciously get involved in understanding cost and management accounting from the perspective of the industry and the corporate in current circumstances. The self-reflection exercise ensures that the student understands the course concepts and is able to connect them with the real world and probe deeper into the concepts and terms involved with the corporate incident. This experience is reflective and reiterative, ensuring the concepts are clearly understood and appropriately applied. Evaluation based on self-reflection journaling makes the exercise more rigorous and effective leading the students to be transformed to be effective learners and practitioners of cost and management accounting. The course otherwise would have been a monotonous and bookish course. Self-reflection journaling based on newspaper articles on real corporate events and news of the day makes the course more live and relevant and also interesting. Self-reflection journaling is thus a very productive and useful tool in the Cost and Management Accounting evaluation process.

### ***Self-Reflection Journaling and Management Education***

Management education at undergraduate and postgraduate levels may include courses as many as 36 to 50 plus. The credits may vary from 90 plus to 100 plus. That leads us to the question, does self-reflection journaling suit an evaluation process for all the courses? The author's answer is an emphatic yes. For every course in management education to

be transformative must be allocating a portion of the evaluation process to self-reflection journaling. There is a great opportunity to make any course to more meaningful, real-world oriented, and character-building with self-reflection journaling. To support the self-reflection journaling with authenticity and authority we need action research carried out more scientifically. The preliminary efforts of the author are indicative that the potential and possibility of self-reflection journaling are huge and remarkable. The review of literature has been supportive of the fact that the self-reflection journal is an effective evaluation tool to bring out transformative education in various domains. There need to be greater efforts to prove the same.

### **Conclusion**

The author has adopted the self-reflection journal as an evaluation tool and found it to be transformative in nature. Higher education in India needs to focus on the transformative power of higher education. To transform the nation be a noble nation, we need to instill character and ethical values, compassion and equity must be nurtured in students, and honesty and integrity need to be the core of the education and evaluation mechanism. The self-reflection journal can make evaluation a powerful transformative tool ensuring that students develop a passion for the course from panic or aversion status at the beginning, they develop a deep understanding of the concepts and principles that makes the course much more relevant to them, they see the application part of the course in their personal, career, social and corporate life. Management education is not only to transform individuals but through these individuals the corporates and the nation as well. The self-reflection journaling has the power to transform the nation if the right approach, methodology, and frameworks are used in implementing it as an evaluation tool beyond being a learning tool.

Also, it must be understood that self-reflection as an evaluation tool can be applied to any course or any program. It depends on the faculty members' creativity and ingenuity in using self-reflection as an evaluation tool. Thus, faculty members must prepare themselves to do this activity as an evaluation tool. □

# Synchronizing Student Assessment Strategies for Sustainable Educational Ecosystem: A Transformative Approach

Siran Mukerji\* and Anjana\*\*

Since the socio-cultural and economic dimensions of the contemporary global educational ecosystem are constantly changing, it is crucial for educators to embrace fresh perspectives and teaching methods. The presence of a thorough and relevant approach to student assessment is one of the key requirements of the educational system today. The concentration on grades and test results in the traditional method of student assessment has been the most common technique, yet it is limiting in adequately assessing a student's genuine potential and abilities. This has been the need for implementing the multidimensional approach to student assessment and evaluation that has been accelerated by technological tools. The purpose of this paper is to explore the current state of student assessment strategies and the impact they have on the educational ecosystem. The paper argues that a synchronizing approach to student assessment is necessary for a sustainable educational ecosystem, and provides a transformative framework to achieve this. The framework emphasizes the importance of collaboration and alignment among stakeholders, the integration of technology, and the continuous evaluation and improvement of assessment practices. The paper highlights various alternative strategies for student assessment in higher education and focuses on emerging technologies for assessment and evaluation. While concluding with a discussion of the potential benefits of a synchronizing approach and providing recommendations for institutions looking to adopt this transformative framework, the authors delve into the challenges in the implementation of technology for assessment and evaluation in the higher education system.

The demand of the present educational sector is fast evolving, and it is crucial for educators to embrace fresh perspectives and revisit the prevailing

teaching methods. Creating a strong, thorough, and relevant method for student evaluation is one of the largest challenges facing the educational system today. The traditional method of student performance evaluation, which dominantly emphasizes grades and test results, falls short of truly portraying a student's genuine potential and ability. It is essential to adopt a path-breaking dynamic strategy for student assessment that stresses a holistic approach to assessment and supports a sustainable educational ecosystem synchronized with environmental changes. Various kinds of evaluation involve judicious decisions with regard to the selection and use of a number of assessment tools and strategies, including self-assessment, peer assessment, and teacher assessment, to provide the learners with a complete picture of their development and to help them recognize their strengths and weaknesses. This strategy also encourages students to actively participate in their own learning, fosters teamwork and critical thinking abilities, and contributes to a more engaging and stimulating educational environment. (Popham, 2008). Further, "Student assessment is a process that helps focus attention on what matters most in education: the learning outcomes of each student. International assessments as well as national examinations and national assessments are examples of standardized forms of student assessment, each used for different purposes. Gathering information on where students stand in their learning and the progress, they have made is key to designing strategies for the further improvement of teaching and learning in schools" (OECD, 2022).

In this research, the potential benefits of employing a multidimensional strategy for learner assessment have been discussed along with the importance of coordinating student assessment methodologies for a sustainable educational ecosystem. Alongside this approach, the possibilities for using self-evaluation, peer assessment, and teacher assessment to support a sustainable educational environment have been explored (Biswas and Pradhan, 2002). In the ensuing section, the authors elucidate the approaches to student assessment.

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## **Approaches to Student Assessment**

### ***Traditional Approach***

The traditional approach to student assessment and evaluation is based mainly on grades and test results and does not provide them with a meaningful review of their progress. It is difficult for students to judge their strengths and weaknesses and incorporate improvements. Additionally, placing too much emphasis on rote learning and grades and test scores may cause learners to lose interest in and enthusiasm for learning.

### ***Multidimensional Approach***

This strategy stresses student-centered learning and encourages engagement in the learning process. Moreover, the multidimensional approach to the student assessment process adopts a more thorough and comprehensive approach, including various assessment methods and tactics to provide learners with a full picture of their development.

### ***Components of Multidimensional Approach to Assessment***

Mainly, three components constitute a multidimensional approach to assessment, and these are self-assessment, peer assessment, and teacher assessment. These assessment mechanisms have multiple advantages for the learners. They provide them with a comprehensive perspective of their progress and help them to understand their potential. They also highlight the areas where they need to improve their understanding and abilities.

The process of reflecting on one's own learning thus assessing the progress made by the learner himself or herself is known as self-assessment. This component of the multidimensional approach to assessment encourages students to be proactive, assuming more responsibilities for their own learning and making effort to identify all those domains that require improvement. By engaging in self-reflection, students can gain a better insight into their own learning techniques and can devise strategies for attaining their goals.

The second equally important approach to assessment is peer assessment which involves evaluating the work of peers i.e. the learners evaluate each other's learning performance. This component encourages students to collaborate and provide constructive feedback to one another. It can

be a valuable tool for promoting critical thinking skills, as students must evaluate the work of others and provide meaningful feedback that can help to improve the work. In addition, peer assessment can also help to build confidence and improve communication skills, as students must effectively communicate their feedback to their peers.

Yet another important assessment technique is the teacher assessment which is the third kind of assessment in which the progress made by the learner is evaluated by the teachers with the help of a number of assessment tools, to name a few, tests, quizzes, projects, presentations, viva-voce, etc. This kind of assessment plays a pivotal role in the education process, as it provides students with much-needed feedback on their progress and helps to determine their knowledge and skills acquired from the material. However, an important aspect that needs to be highlighted is that the teacher assessment should be aligned with the learning objectives and should be used to help students understand their strengths and weaknesses and to make meaningful improvements to their learning.

### ***Advantages of a Multidimensional Approach to Assessment***

The use of a multidimensional approach to assessment in education irrespective of the level of education has numerous merits for the stakeholders, students, and educators. Let us now examine the relative advantages of using this approach:

- The first merit of this using this approach is that it encourages student-centered learning. It facilitates the students to be proactively involved in their own learning and reflect on the progress made thus promoting a more student-centered learning experience, where students are more likely to be better engaged and motivated.
- Multidimensional approach to assessment encourages collaboration. Peer assessment and other methods of collaborative assessments promote teamwork and collaboration among students. Thus, helping in fostering social skills amongst the learners and developing a sense of community belongingness within the class.
- This approach also enhances critical thinking skills. Engaging in peer group review and appraisal along with giving constructive feedback, critical thinking skills are developed in the students,

besides helping them to better understand the concepts they are learning.

- It also provides a holistic understanding of students' progress made in the course. It generates better awareness of their potential thereby, thus making meaningful changes and improvements to their learning.
- Multidimensional assessment encourages a sustainable educational ecosystem by promoting student-centered learning, collaboration, and critical thinking skills. Thus, helping to foster a more engaging, positive, and motivating educational experience. This can lead to a more sustainable educational ecosystem, where students are more likely to be successful and to continue learning throughout their lives (Rodríguez-Gómez and Ibarra-Sáiz, 2015).

### **Assessment and Evaluation in Higher Education**

Student assessment practices in higher education serve to evaluate the learning outcomes of students in a course or program. There are numerous assessment practices used in higher education. This section delves into some of the principal types of assessment practices:

#### ***Summative Assessment***

Summative assessments are intended to evaluate student learning by comparing it to a benchmark or standard at the conclusion of a unit of instruction. They are used to evaluate the overall understanding of the contents at the end of a course or program. These assessments are often high-stakes and may include exams, written assignments, research papers, projects, dissertations, or presentations. The results of these assessments are used to determine the final course grade and to assess whether students have met the learning objectives for the course.

#### ***Formative Assessments***

On the other hand, formative assessment aims to keep track of student learning and provide continual feedback that teachers can utilize to adapt and improve their teaching, and students can enhance their learning. Therefore, formative assessments can be said to provide continuous feedback to students throughout the course. These assessments are designed with the objective to help students identify areas where they need to improve

and allow instructors to adjust their teaching to meet the needs of the students (Baleni, 2015). Examples of formative assessments include quizzes, in-class discussions, and self-reflection assignments.

#### ***Performance Assessments***

Through what is referred to as a performance task, knowledge, abilities, and skill sets are demonstrated and applied as part of the performance assessment process. However, it must be seen that in such kind of assessment strategy, the assignment given to the learners must be interesting, relevant and meaningful for them. The main objective of this kind of assessment is to judge the students about their capability to apply knowledge and skills learnt during the course in real-world situations. They usually comprise of hands-on projects or simulations that require students to demonstrate their understanding of the material. These assessments are often used in courses that require practical skills or hands-on experience, such as laboratory courses or courses in the performing arts.

#### ***Portfolio Assessments***

Yet another important kind of assessment practice used in higher education is portfolios. These are applied in courses that require students to demonstrate their learning over a series or longer period, as for instance in courses that require students to generate multiple pieces of work throughout the semester.

#### ***Self-assessment***

One of the most used assessment practices in both online and offline courses is self-assessment wherein a learner evaluates one's own learning and performance. These are generally also known as self-check or self-learning exercises, often used to help students reflect on their own learning, and determine the weak areas or concerns and the areas which need improvement. These again can be of multiple forms, including self-reflection assignments, peer assessments, or online self-assessment tools.

#### ***Authentic Assessments***

Using creative learning experiences to evaluate students' abilities and knowledge in practical contexts is known as authentic assessment. When this assessment practice is used, it can be determined whether students have learned the skills that are required of them once they have completed the



course. Authentic assessments require students to demonstrate their understanding of the material in real-world situations. These assessments are designed in such a way that they are more relevant and meaningful for the students and can be accomplished through problem-solving activities, case studies, or community-based projects.

### ***Standardized Assessments***

A standardized assessment is a test where all test-takers are evaluated using the same questions and criteria. Experts create and publish standardized tests for a variety of purposes, including skill and aptitude evaluation, academic achievement evaluation, and academic achievement prediction. Common standardized test categories include achievement tests, tests of academic ability and intelligence, tests of particular aptitude, and tests of school readiness. The cognitive abilities required for achievement at the next level of the school or for entry into a new organization can be evaluated using a school readiness assessment. The future success of a student in each academic area can be predicted using a specialized aptitude evaluation.

From the aforesaid discussion, it is evident that there are a variety of student assessment practices used in higher education, each with its own strengths and weaknesses. However, the selection of the assessment method depends on several factors such as the learning objectives of the course, the skills and knowledge being assessed of the learner, and the overall goals of the program. Regardless of the assessment method used, higher education institutions need to ascertain that such assessment practices are used which are relevant, valid, reliable, and fair, and to provide students with ongoing feedback and opportunities to improve their learning outcomes.

### **Transformative Framework for Synchronizing Student Assessment Strategies**

The use of technology, stakeholder collaboration, and alignment, as well as ongoing assessment practice and improvement, are necessary to implement a synchronized strategy for student assessment. In this section, an effort is being made to identify and discuss the various elements that are instrumental in adopting a synchronizing approach to student assessment strategies. The first and foremost element responsible for the success of

the synchronized approach to student assessment is having adequate collaboration and alignment among stakeholders. The stakeholders, in this case, are the teachers, administrators, and students. This entails collaborating to create a common understanding of assessment processes and connecting assessment objectives to learning objectives. In addition to using a standard language and technologies to facilitate assessment methods, this calls for regular communication and collaboration across stakeholders.

Integration of Technology is yet another crucial element that plays a significant role in synchronizing student assessment strategies. Through a platform, it facilitates collaboration and communication amongst the stakeholders and also facilitates the collection and analysis of assessment data of the learners. Online platforms such as learning management systems (LMS), online assessment tools, and data analytics contribute significantly to creating a transformative, cohesive, and synchronized dimension to the assessment of the learners' performance.

Yet another element worth mentioning here is the incorporation of a system of continuous evaluation and improvement for the synchronizing approach to student assessment. This is essential to ensure adequate student learning and development. This also helps in strategic planning and decision-making for either developing or adopting future assessment approaches by data collection and interpretation of the impact of assessment practices.

However, the success of implementing a synchronizing approach to student assessment is governed by certain factors and these are as follows:

Devising a shared understanding of assessment practices in the institution amongst all the stakeholders helps in proper communication and their implementation. It is also imperative to align assessment goals with learning outcomes which are achieved solely through regular interaction and collaboration among stakeholders, as well as the development of a shared assessment framework.

Next vital factor affecting the assessment practice is the integration of technology with assessment practices. Efforts need to be initiated

by educational institutions to leverage technology that supports a more efficient, effective, and comprehensive assessment experience. This can be accomplished by having a composite and robust learning management system, online assessment tools, and data analytics system that automates the assessment process, provides real-time feedback to students, and enables institutions to collect and analyze data on the impact of assessment practices.

There is also a need for such a system that ensures periodical evaluation and improvement of assessment practices based on feedback received from the stakeholders. Continuous appraisal and review of the on-going assessment practices entail improvement of the system and remaining abreast of the latest methods and technologies that are being utilized for this purpose.

Apart from the aforesaid factors, a dimension noteworthy for the success of synchronized assessment strategies is the presence of institutional policies for the professional development of the teachers. All educational institutions need to compulsorily develop continuous human resource development strategies that enable the teachers to remain adept at the effective use of technology in assessment and possess a better understanding of assessment means and practices. Such training and development methods could include workshops, simulations, short-term online courses, MOOCs, seminars, etc.

Since students are one of the key stakeholders in the assessment process, therefore it is necessary to involve them also in this process. This may include incorporating student-generated assessments and feedback into the curriculum, involving students in the design and implementation of assessments, and providing them access to data on their own performance and progress.

Adopting a synchronized approach to assessment in the educational institution is the key to its success. It helps in improving student learning and development because they are able to determine the rationale behind their learning and assessment practices, thus leading to better understanding and improved performance. This also provides a more comprehensive picture of student progress, allowing teachers to make amendments to their instruction and provide support accordingly. This approach is also

instrumental in increasing the equity and validity of the learner assessment process because it is a blend of both traditional as well as novel techniques, therefore enabling an assortment of the best of both systems. This can also help to address issues of bias and cultural sensitivity in assessment practices. Further, since a synchronized approach aligns all the stakeholders towards a single direction, therefore it brings all of them to a common platform, thus helping in enhanced collaboration and interaction among stakeholders, leading to a more sustainable educational ecosystem.

### **Alternative Strategies for Student Assessment in Higher Education**

In addition to the traditional methods of student assessment and evaluation, there have been numerous innovations in this domain of education. These methods have been devised by incorporating the use of adequate technological interventions suited to the learning requirements of the courses.

#### ***Concept Maps***

Concept maps may be used as an alternative assessment tool that enables formative assessment of the learners' understandings as well as misconceptions. These are the visual representations of the relationships between concepts and ideas that can be used to gauge a learner's comprehension of complex ideas as well as their capacity to recognize and connect key concepts. These help students in grasping the broader picture and comprehend the relationship between various concepts and ideas. These provide a visual representation of a student's thought process and comprehension of the subject matter and therefore, are especially useful for the disciplines where understanding complex systems and relationships is critical such as like science and engineering. This tool is a more dynamic and interactive way of assessing student learning in comparison to traditional methods of assessment.

#### ***Concept Tests***

These are the multiple-choice tests that enable the teachers to assess the comprehension of a specific idea by the learners. Concept tests are useful in identifying the common misconceptions of the students about traditionally difficult concepts in Science and Engineering and help in improving the student's understanding of fundamental concepts.

During the class, questions are typically asked the students that require them to apply their conceptual knowledge in different scenarios. Once the teacher confirms the correct response, the students discuss why the answer is correct. Therefore, concept tests enable an in-depth and meaningful assessment of student learning and provide valuable insight into the student's understanding by identifying the areas where additional guidance is required.

### ***e-Portfolio***

e-Portfolio, the online space where students can store and organize the artifacts that they create as a part of their course such as written assignments, photos, videos, etc. enables them to reflect on their educational experiences. It provides a comprehensive and authentic representation of students' learning as it allows them to integrate multiple forms of evidence such as multimedia, simulations, etc. This tool provides an opportunity to the students to reflect upon their own learning experience by drawing explicit connections and documenting the development of their critical thinking and problem-solving skills. This space also enables the students to share their work with peer group, teachers, potential employers, etc.

### ***Podcasts and Vlogs***

Podcasts and vlogs are the tools that may be used by the students to showcase their understanding of a topic/subject using multimedia methods and demonstrating their learning in a dynamic way. These also enable the teachers to derive valuable insight into the oral and visual communication skills of the learners and their ability to convey their knowledge effectively. In terms of content-based orientations, these tools are similar to poster presentations, however, they take it to the next level by enabling and establishing an extension of the classroom for audiences outside of the students' immediate peers and teacher. In addition to fostering professional writing and presenting techniques, these also promote networking and the building of connections between the students and their field of study.

### ***Talk Show Performances***

A talk show performance, which instructs students to embody their learning for an interactive, live or recorded discussion, is an authentic variation of the traditional in-class presentation. It may be character-based (students adopting and acting as

an expert in their field, discussing the problems, analyses, diagrams, etc., and responding to queries as this expert would) or self-based (i.e. students perform as themselves, presenting the materials and answering questions as they themselves would based on their developing knowledge).

### ***Discussion Forums***

These are the platforms used for asynchronous discussion on a particular topic or subject between the teachers and the taught, peer group, moderators, instructors, etc., and expression and sharing of ideas, opinions, and thoughts. In this alternative assessment strategy for student evaluation, the learners collaborate as well as assess of their peer group. It provides an insight into the critical thinking ability of the students, their communication and collaboration skills, research, and problem-solving approach. Therefore, this tool may prove to be especially worth implementation in subjects that require the learners to participate in online discussions and work in a collaborative manner.

### ***Blog Contribution***

Blog contribution is yet another alternative assessment strategy that can be used for assessment of the higher education students. In this method of assessment, the students are evaluated on the basis of their contribution towards a course or class blog created on a particular topic by way of expression of their thoughts, ideas and opinion. The students may also be assessed for their research and problem solving ability through this method of assessment.

### ***Wiki Collaboration***

Wiki collaboration strategy for student assessment and evaluation may be especially important for the disciplines where the students are assessed for their ability to collaborate with others and contribute towards a collective project. It is one of the means that facilitate the development of various critical thinking, collaborative, and communication skills and it provides an engaging way of assessment of the student's learning. In this strategy, students work in a collaborative manner for creating or editing a wiki on a particular theme wherein they support their ideas with evidence and sources of information.

### ***Audio-video Assignments***

In this assessment strategy, the students have

to prepare assignments in the form of audios and/or video recordings, expressing their knowledge, learning, and understanding of a given topic in which the information is presented in a concise and organized manner. Through this strategy, the teachers can make an assessment of the critical thinking and communication skills of the students and therefore, this method may be particularly used for the assessment of the students enrolled in subjects where the ability to communicate effectively and use multimedia technologies is critical.

### ***Online Quizzes***

The online quiz is a quick, efficient, automatically graded strategy for assessment of students' learning that may provide instant feedback on the performance of the students. There are several digital platforms that may be used for designing, developing, and administering the online quizzes and this strategy can be used for precise assessment in terms of the achievement of the learning objectives.

### **Emerging Technologies for Assessment and Evaluation**

In recent years, significant transformations have occurred in the field of education including student assessment and evaluation in which emerging technologies have played a key role by providing accurate, efficient, and engaging innovative methods. In this section, some of the important emerging technologies for student assessment and evaluation in higher education have been discussed.

#### ***Artificial Intelligence***

Parts of the traditional assessment practice have been automated entirely or in part using AI-based techniques that are capable of creating assessment tasks, identifying relevant peers to grade work, and scoring student works automatically. In recent years, a number of studies have been proposed for the application of AI techniques for automated assessment construction, peer assessment, and writing analytics and to provide a more continuous view of performance, thus providing insights into the learning of the students. AI has made it possible to adjust the assessment task as per the students' abilities i.e. tailored assessment exercises rather than the same assessment task to all the students (Swiecki et al., 2022).

#### ***Gamification and Simulation***

Gamification can enhance the way formative evaluation is conducted by engaging students in activities that, if properly planned, would yield useful data for the many educational actors (teachers, parents, students, and school administrators). Making immersive gaming scenarios that may be utilised as evaluation assignments while also meeting the evaluation's quality requirements (such as taking into account fairness, validity, and reliability) is one of the key issues (Zapata-Rivera & Bauer, 2012). There are many possibilities for the integration of gamification with the development of assessment tasks and it is expected that gamification may have an important role to play in a comprehensive evaluation system (Zapata-Rivera and Bauer, 2012).

#### ***Mobile Assessment***

A logical progression from integrating technology into educational evaluation is a mobile assessment which is a new area with the first foundational research published in 2005. Despite this, it has drawn the interest of experts from all around the world and examined its delivery and effects on student assessment (Sahin, 2015). Mobile assessment has applications in numerous contexts, such as mobile environments, classrooms, work-based settings, informal learning settings, distance education settings, etc.

#### ***Virtual Reality and Augmented Reality***

These are the technologies that can simulate real-life situations by creating immersive and interactive learning experiences for the learners as well as evaluating their skills and knowledge in practice. Additionally, teachers would surely appreciate VR's capacity to block out the outside world because it would not only enable their students to concentrate and be totally present during a remote examination, but it also decreases the chances of cheating in such examinations. However, not all subjects can be taught or evaluated in virtual reality. Some areas of study and training are more appropriate than others, and it is up to the teachers and designers of such learning sessions to consider the benefits of VR along with its limitations.

#### ***Automated Essay Scoring***

Automated essay scoring is a computer-based assessment system that automatically scores or grades the student responses by considering appropriate

features (Ramesh and Sanampudi, 2022). This system used an Algorithm of Artificial Intelligence for student assessment and evaluation and is able to provide immediate feedback on their performance, thus reducing the impact of human bias on grading and assessment providing more objective and fair evaluation.

To sum up, these emerging technologies have the potential to transform the students' assessment and evaluation method in the higher education system. As these technologies offer novel and innovative methods of accurate and efficient assessment, the teachers embracing these technologies will be well-positioned in providing modern students with the tools and feedback that are required for succeeding in a rapidly transforming world.

### **Challenges in the Implementation of Technology for Assessment and Evaluation in Higher Education**

Technology is being widely used in all spheres of education management including student assessment and evaluation, bringing about significant changes in the system. Though there are ample benefits to using technology in student assessment, as it leads to an improved and more effective system. However, the merits are also accompanied by major challenges that are faced by higher education institutions in the implementation of technology. There is a need for formulating adequate institution-level strategies for effectively coping with these challenges.

- Availability of necessary Information Technology (IT) related infrastructure in educational institutions is a necessity, however, all the institutions at all levels often are unable to possess adequate, relevant, and up-to-date hardware and software leading to reduced capacity for the institutions. It is also necessary to regularly update the hardware and software in view of the frequent technological innovations occurring in this sector.
- To ensure the acceptance and participation of the teachers in the use of technology for assessment, it becomes pertinent for educational institutions to provide adequate training and development opportunities to their teachers so that they are equipped with the necessary skill and knowledge required for managing the assessment process with the help of latest technological interventions.

They need to be trained in the use of technology in education and also about the latest assessment strategies available.

- Yet another challenge faced by the institutions is that of customization of their assessment techniques according to the requirements of the courses and the technological interventions, therefore the assessment procedures need to be aligned and made compatible with the technology so that maximum advantage can be accrued from these innovations. This also calls for providing the necessary expertise to the teachers for managing the improvised assessment techniques.
- Maintenance of data privacy and security needs to be ascertained in educational institutions for successful implementation of student assessment and evaluation. This includes having a secure online interface, student data privacy protection, and security of institutional online resources.
- Development of technology-based student evaluation and assessment platforms for educational institutions entails cost. The acquisition and maintenance of hardware and software become challenging for many institutions which have limited resources.
- Validity, standardization, and reliability of assessment approaches are yet another constraint faced by the institutions while implementing technology for this purpose. Factors such as IT failure, disruption in internet connectivity, hardware compatibility, etc. could affect the reliability and validity of the system. This calls for regular updation and maintenance of the system so that there is a hindrance-free assessment process.

Therefore, for ensuring a sustainable educational assessment ecosystem, there is a need for ensuring the implementation of the right kind of technology that is suited to the requirements of the institutions. Besides, it is necessary for educational institutions to ascertain regular updation and maintenance of IT infrastructure along with the online assessment and evaluation platforms so that the objectives are achieved, and student assessment is done in view of their learning outcomes.

### **Recommendations for Educational Institutions**

In view of the important place that the assessment and evaluation of student performance

occupy in the educational ecosystem, the following are the recommendations that could be kept in mind by educational institutions for enhancing the effectiveness of the assessment process and ensuring the achievement of learning objectives.

### ***Develop a Shared Understanding of Assessment Practices***

The goals of assessments should be in line with learning objectives, and institutions should attempt to have a common understanding of assessment processes. The adoption of a common language and tools to support evaluation methods, as well as regular communication and collaboration among stakeholders, can help achieve this.

### ***Adequate Investment in Technology***

In order to facilitate student assessment, educational institutions should invest in technology in the form of learning management systems, online assessment tools, data analytics, etc. As a result, assessment procedures will be more effective and efficient and will paint a more comprehensive picture of student growth and learning.

### **Evaluate and Improve Assessment Practices**

Institutions should continually analyse and enhance their assessment procedures to make sure they are successfully promoting the learning and growth of their students. In order to make informed decisions and advancements in the future, this entails gathering and analysing data on the effects of evaluation techniques.

### **Conclusion**

A synchronizing approach to student assessment can play a critical role in promoting student learning and development and supporting the sustainability of the educational ecosystem. By aligning assessment practices, leveraging technology, and continuously evaluating and improving assessment practices, institutions can create a more comprehensive and meaningful assessment experience for students. Implementing a synchronizing approach to student assessment requires collaboration and alignment among stakeholders, ongoing professional development for teachers, and active engagement of students in the assessment process. By taking these steps, institutions can create a transformative and sustainable educational ecosystem, in which

student assessment supports student learning and development.

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# Evaluation Reforms for Transformative Higher Education

Hema V Raghavan\*

This issue on Continual Assessment and Evaluation is a welcome one, provided our academics and policymakers are open to having a re-look and re-visit a few decisions already taken about implementing fresh guidelines for assessment. Already Delhi University seems one of the firsts off the blocks, having arrived at a detailed evaluation pattern for its first-year guinea pigs. For me, to write this article currently is like doing ‘too little and too late’. Nevertheless, as a committed educationist for more than six decades, I feel it a betrayal of millions of future graduates if I don’t attempt a review of the new template for evaluation, as these herculean efforts to improve the quality of our Higher Education may fail to achieve their intended goal. I had earlier contributed to the University News on Transformative Curriculum for Higher Education in the Jan 16-22, 2023 issue. The related and relevant discussion on Evaluation Reforms, if seen in the light of my earlier article, may help policymakers as well as academics and stakeholders to reconsider their earlier guidelines and arrive at a modified template to enhance the quality of higher education. My attempt is to reign in the horse even if it had bolted out and tether it back to its post to provide Transformative Higher Education a stable valuation. I like to add a caveat that the suggested reforms are not out-of-the-box ideas but borne out of long years of academic experiences that include teaching, setting up question papers, evaluation of scripts, and rechecking and revaluation of answer scripts.

Before we discuss this in detail evaluation reforms, we must have a clear perception of the issue by addressing the following questions:

1. Assessment of what? What is it that is to be evaluated before declaring a graduand as a graduate?
2. In the current efforts to bring in transformative education with its conglomerate of courses, uniform assessment criteria for all the courses –(both academic and extra-academic courses) may not be feasible one. It will be problematic

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to follow one-size fits all approach towards the assessment of different courses. Academic courses are theoretical while Skill based courses are practical. Courses such as Value-Added and Ability Enhancement may not lend themselves to practical tests .

3. Was there dissatisfaction in the recent evaluation system that it needs a complete overhaul?
4. Who shall be the paper setters and the evaluators whose assessment is well and truly beyond subjectivity?
5. Will the new methods of assessment and grades make or mar a student’s access to jobs?
6. What are the criteria to be fulfilled by the student to be a graduate? And overarching all these five, though last, but the most important question
7. What defines a university graduate?

Careful scrutiny of the above questions is the *sine qua non* for the university academics to get a clear picture of what they should look for in graduate students and then formulate steps to evaluate his/her real potential. Allied with the above questions are society’s expectations of a university graduate. Conferment of a degree based on rigorous evaluation is a stamp of approval by the University after it is satisfied that the student fulfills the eligibility requirements set by the University and the expectations of society. A watertight evaluation is needed to make the degree a sacrosanct document that benefits both the possessor and the beneficiary.

University education has the onerous task of fulfilling the demands of society by equipping our young men and women with adequate expertise to identify the essential requirements of their society, list them in order of importance and build strategies to meet those specific needs. The role of the Universities is to help students in their transition from a cocooned school life to an open life in a wider and bigger world and enable them to function as well-informed and responsible members of their society and contribute to its progress and welfare. The universities have twin objectives- to shape young students toward their *personal and professional* growth and develop them

into *humane citizens* cultivating empathy to reach out to society.

The universities established in the 5<sup>th</sup> century AD (Nalanda), followed by the universities in Europe-(Bologna, Oxford...) from the 11<sup>th</sup> century till today have shouldered the huge task of educating young graduate students to imbibe responsible humanism to benefit the material, mental and moral progress of fellow humanity. To be certified as worthy to undertake the task, these students have to be trained in rigorous academic studies and tested and evaluated and arrive at an ironclad assessment that precisely reflects the student's potential.

The only institutions that can confer degrees have always been universities. Post-secondary certificates and diplomas are not the responsibility of the universities. So, the key point is to understand the key graduate attributes and tick them to arrive at a fair and just assessment. This takes us to the last question given above as to what defines a graduate.

The graduate student must demonstrate a reasonably good knowledge and understanding of the subject of her/his choice, the ability to engage with divergent views, sift and analyze them, and the ability to put into practice the knowledge gained from university courses in multi-disciplinary, multi-professional, and multi divergent contexts. In simple language, it is the cultivation of a flexible, objective, and rational mind to be applied to work for the betterment and welfare of Society.

On a personal front, it is the cultivation of an open mind, intellectually and culturally mature, with the ability to express articulate and discuss different views and act in consonance with the best of ideas both in the interest of self-improvement and for the benefit of fellow beings.

A true graduate possesses an evolved mind that decides to walk in the light of creative altruism instead of roaming in the darkness of destructive selfishness (to adapt the words of Martin Luther King, Jr)

For a majority of present-day opinion makers, such attributes and rigorous benchmarks for evaluation may seem utopian, impracticable, and illusory expectations of fanciful thinking. I am not going to discuss the nitty-gritty details that universities are adopting towards implementation (which I am afraid seems a mockery of evaluation); my attempt is to

show why the assessment guidelines in the New Education assessment have to plug the loopholes that currently serve neither the user nor the beneficiary. The lack of a well worked out Evaluation reforms *prima facie* mirrors a lack of clear perception of what goes into the making of an academic graduate.

Thus the issue of transformative change in evaluation takes us to question (2) listed above- "Since the transformative education with its conglomerate of courses has to be assessed, should there be One-size- fits- all approach or should there be different assessment schemes?"

The one- size- fits- all is more of a compulsion to make homogeneity a virtue. This is the starting point of debates about our Higher Education policies. Even at the cost of repeating myself multiple times, I affirm *all processes of improving the quality of Higher Education in India hinge on making academic degrees separately fenced*. The current expansion of academic courses by opening them to include skill development, value addition, and ability enhancement courses leaves the students neither skill trained nor educated and sufficiently knowledgeable to serve society's fundamental needs.

The present template gives just 56% to academic subjects and 44% to the other courses that can be broadly classified as non-academic courses. What was 100% weightage for university academic courses have now been scaled to 56%. The academic courses are intended to test the student's comprehension of the subject chosen, his ability to understand and differentiate the various views and arrive at a reasoned supposition that he could articulate with good communicative skills. This cannot be tested and equated with all other courses with their emphasis on practical skills.

A graduate degree is different from a degree/ diploma/certificate issued by other Post- Secondary institutions where the evaluation is based on the proficiency obtained in practical, skill-based courses. Though I am no longer privy to the cut and changes made in the University of Delhi curriculum, I learn that in many departments 5-semester academic courses have been bundled into 3 to accommodate all the VACs, AECs, and SECs. The worry that I do share with a lot of other academics is the paradox of enhancing the quality of higher education through the dilution of the academic component. The problem has arisen and like a parrot, I repeat, due to a lack



of clear perception about academic learning goals. When university academic programmes conflate with skill training programmes, when education becomes a handmaid to Industry and taught course curriculum is determined by non-academic experts, academic inputs suffer. To test the outcome of a weakened academic ingestion goes counter to the idea of Transformative Higher Education.

With the dilution of the taught courses, what kind of an Assessment can be there to test how far the students have absorbed the Academic Learning Goals? What are these Academic learning goals? These questions are raised in the list given above (4-7) whether the assessment of partial academic learning will have a bearing on the young graduate's access to intellectually stimulating jobs such as Graphic designers, engineers, lawyers, surgeons, Class I officers, architects...!

Stanford University lists these goals to help academics to determine what they want their students to know and what they must teach and assess at the end of the course.

- “What are the most important concepts (ideas, methods, theories, approaches, perspectives, and other broad themes of your field, etc.) that students should be able to understand, identify, or define at the end of your course?”
- What would constitute a "firm understanding", a "good identification", and so on, and how would you assess this? What lower-level facts or information would students need to have mastered and retained as part of their larger conceptual structuring of the material?
- What questions should your students be able to answer at the end of the course?
- What are the most important skills that students should develop and be able to apply in and after your course (quantitative analysis, problem-solving, close reading, analytical writing, critical thinking, asking questions, knowing how to learn, etc.)?
- How will you help the students build these skills, and how will you help them test their mastery of these skills?
- Do you have any affective goals for the course, such as students developing a love for the field?"<https://>

[evals.stanford.edu/end-term-feedback/how-write-learning-goals](https://evals.stanford.edu/end-term-feedback/how-write-learning-goals)

The Stanford guidelines are also reflected in the Academic learning Goals set by Bloom's Taxonomy, Fink's Taxonomy of Learning Experiences, and Lumina Foundation's Degree Qualifications Profile.

- (a) three (a) thinking skills from lower-order i.e., remembering and recalling to higher-order i.e., evaluating, creating (Bloom's Taxonomy),
- (b) holistic intellectual development reflected in (1) foundational knowledge, 2) application, 3) integration, 4) human dimensions (i.e. knowledge of self and others), 5) caring (i.e. appreciating or valuing the subject matter), and 6) learning how to learn. (Fink's Taxonomy of Learning Experiences)
- (c) specific learning outcomes for bachelor's and master's students in five categories: specialized knowledge, broad and integrative knowledge, intellectual skills, applied and collaborative learning, and civic and global learning. (Lumina Foundation's Degree Qualifications Profile)

The graduate profile/attributes are a direct index to the students' capabilities that will reflect his/her knowledge base and skills, how s/he can apply new knowledge to provide solutions to new problems, and play a constructive role as a responsible citizen in the society. As stated earlier, this demands cultivation of an inquiring and open mind, as well as flexibility and adaptability. “A good graduate student is not necessarily the one with the top grades but the one who is willing to ask questions, to challenge what they are told but is also [able] to take advice”.<sup>2</sup> Can these be tested in the present overloaded, time-heavy curriculum that meshes academic learning with skill training?

The third question- “Was there dissatisfaction with the earlier evaluation system that it needs a complete overhaul?”- is a very important question. There has been a steady erosion in recent years in the process of examination and assessment. (my views are closely related to Delhi University).The secrecy surrounding the names of the paper setters and evaluators is no longer there. The paper setters are from the colleges that teach the discipline. They haggle over what to include and what to exclude- not on the basis of the course structure but on the basis of what they had taught/not taught. The plausibility

of these papers stealthily photocopied on one's smartphone by anyone of the paper setters is not to be dismissed as red herring, putting a question mark on the validity and sanctity of the exams. The same paper setters with a few helping hands evaluate the papers. This is done at the Central evaluating Centres where the evaluators are huddled like packed sardines and are mandated to finish at least a bundle(25+ scripts), if not two. Evaluating the scripts under such pressure leads to racing against time rather than spending time on each script to make a proper assessment. In the '70s in DU even when the rechecking and re-valuation were done, it was conducted with utmost secrecy when the marks awarded by the previous examiners on the scripts were taped lest the third examiner who is assigned the re-valuation task should have a look and be prejudiced beforehand. Now with no opacity in setting question papers and evaluating the script, there is certainly a need for reform. Also, this reform is overdue in the current context of meshing academics with extra-academic courses. The farce of holding practical exams for Humanities and Social science Courses is the last straw on the addled minds.

For effective Transformative Evaluation in the context of transformative quality of Higher education, the following points can be mulled over:

1. Evaluation of Academic Learning should be

delinked from evaluation of all other non-academic courses such as SEC, AEC, VAC...

2. 100% weightage for Academic Assessment must be retained as before.
3. There must be complete opacity in matters of setting question papers and evaluating them.
4. The paper setter and the evaluator should be identified after scrutiny of top faculty Professors/ Associate Professors teaching the discipline in different colleges. Only committed and conscientious evaluators are to be assigned this onerous task as the future of the student is the issue.
5. The present Central Evaluating Centre must be disbanded and adequate time is given to the examiners without Damocles' Sword of quotidian output hanging over their heads. Scripts must be sent home for the examiner to do without pressure.
6. The Academic learning Goals must be borne in mind when the evaluation is done.

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1. <https://evals.stanford.edu/end-term-feedback/how-write-learning-goals>
2. *Brainly.in* □

## AIU Publication

on

### ***REIMAGINING INDIAN UNIVERSITIES***

'Reimagining Indian Universities' edited by Dr. (Mrs) Pankaj Mittal and Dr S Rama Devi Pani is a collection of essays by some of the greatest thinkers in the field of Indian higher education. Each essay in the book examines one or more of the critical topics and provides solutions and methods to overcome the issues involved in them. It provides new solutions and methods in the form of reforms and innovations to elevate Indian universities to world-class top-ranking levels. The book aims at providing a roadmap to government as well as the universities to gear themselves towards becoming more responsive to the present and future demands of higher education. Generating a corpus of new ideas that are significant for reimagining, reforming and rejuvenating Indian higher education system, Book is 'must read' for all those who are interested in reforming Indian Higher Education System.

The release of the book in the Annual Meet of Vice Chancellors 2020, coincides with the launch of New Education Policy. The Foreword for the Book was written by the then Minister of Education Shri Ramesh Pokhriyal 'Nishank'.

***PP: 372, Unpriced. Available at AIU Website: [www.aiu.ac.in](http://www.aiu.ac.in)***

# The Examination Conundrum

B S Madhukar\*

The Coronavirus did the unimaginable by bringing the evaluation (read examination) system of our education (including tertiary) to a grinding halt. This situation triggered a reflection by the author on his experiences during assessment visits conducted by National Assessment and Accreditation Council (NAAC) over the years, to a large number of universities and colleges across the length and breadth of the country. This article is an effort in particular, to examine in brief, the core aspect of teaching learning and evaluation and its perception by stakeholders inside and outside the institution keeping in context the already existing dilemma in the higher education space, a need for an overhaul, but continues to maintain status quo with pull and push at various levels.

The higher education in India as of date is delivered by about 1050 Universities and 45000 colleges catering to nearly 40 million students (about 80 per cent enrolment in colleges) spread across the length and breadth of the country. The lockdown coming at the fag end of an academic year has thrown academic activities into a tailspin. One aspect of immediate concern is the completion of the prescribed course content (teaching–learning process) and the other is the year-end evaluation of students or in common parlance, the examination. A quick-fix solution to the problem is being proposed and is likely to be implemented and forgotten after some time.

Now looking at the larger context of evaluation, the Universities (Conventional and Open) and autonomous colleges are responsible to conduct examinations across all disciplines of study offered by them. The examination is generally a combination of Practical and theory depending upon the purpose and discipline of study and can be tri-mister, semester, or yearly depending on the structure of evaluation adopted. The yearly system of examination as of date is highly unlikely.

The theoretical aspect of the evaluation, which is largely a written examination accounting for

maximum marks/grades, is a massive exercise and its purpose is to maintain a common set of standards, sanctity of the evaluation, and declare results in a time-bound manner to provide equal opportunities to students across the country for further employment / higher studies, etc.

Many Universities need to conduct examinations for a large number of students across disciplines and particularly if it is an affiliating university, the numbers are mind-boggling. The protocols developed for the purpose over time like the setting of multiple question papers, distribution of hall tickets, randomization of questions in set papers, the just-in-time transmission of question papers to examination centers, seating arrangements in the examination hall, deployment of flying squads, security of answer papers, post examination requirements of paper correction, etc., involve extraordinary efforts as it is based on the premise of distrust. The introduction of the semester/trimester system of evaluation (a concept drawn from the western world) over the last few years further increased the load on the evaluation process. After all these efforts, it is largely accepted that the present system of examination only encourages rote learning, and also no indications are available from the employers that trimester/semester type of examination produces better graduates/postgraduates or engineers.

Further, it is a myth that all Universities and colleges across India will maintain a common set of standards of teaching/evaluation and declare results within a particular time limit for the graduates and post-graduates they produce to access opportunities in a common timeline. Despite the varying factors, degrees granted by all recognized universities in a discipline are considered equal to each other across the country. Even the nomenclature used to describe any degree is prescribed by the University Grants Commission ( UGC) to usher in uniformity.

Looking at the human resource output from the higher education institution from an employer point of view, it is a common refrain that our graduates/ postgraduates to a large extent are unemployable without further training and additional costs to the hiring organization. Further, scans of the advertisements in News Papers for entry-level employment, either in the private

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sector or Government Sectors (including Public Sector undertaking) use the degrees as a first-level screening mechanism for acceptance of application to employment and conduct exclusive written tests and interviews for selection/offer of employment. Similar is the case for enrolment to higher levels of education. In addition, employment happens through an informal mechanism like networking, references, and regional requirements. etc. In effect, differential levels of teaching/evaluation happen for the same degree acquired by students from our higher education system, and employers devise their own mechanisms for job offers. Further, over the years it is noticed that the discipline of study and nature of the job may not be in sync. Ex: Science graduates working in a Bank, Arts graduates in Insurance, etc. Moreover with the gig economy likely to be the new normal, degrees and jobs may further get delinked.

Looking at the above factors it is appropriate to initiate action to overhaul our evaluation system as most educationists in private conversations agree that the massive exercise of evaluation has not only` lost its relevance but is a drag on the higher education system hindering its innate capacity to change.

The National Education Policy 2020 also envisages that all colleges in the country be Autonomous institutions in a decade and accreditation shall be the mechanism to maintain quality. Fast forwarding the above recommendation will help. In this direction, the first action can be towards decentralizing the evaluation system by widening the scope of the University Grants Commission scheme of “*Paramarsh*”.

The concept of the scheme as the name suggests is to identify and utilize the expertise of Institutions to help other nearby institutions. At present, the outline of the scheme is to identify colleges which has achieved good rating in the NAAC assessment process and nominate them as mentor colleges and empower them to hand hold 5 other colleges referred

to as mentee colleges to acquire accreditation in 2 years’ time. At present more than 150 colleges across the country has been identified as mentor college based on high-grade scores obtained by them through NAAC’s accreditation.

These identified colleges may be entrusted with the additional responsibility to conduct evaluation/ examinations for 6 to 10 colleges to be attached to them by providing required flexibility in operations and appropriate checks and balances by the university/ regulatory body. Since only the Autonomous colleges are empowered to conduct the examination, non - autonomous colleges among the identified mentor colleges are prepared to acquire the status of autonomous colleges in a year’s time.

This approach may help to reframe the evaluation process given the limited student numbers to be handled by each autonomous unit. The guiding force is to bring flexibility and trust in the evaluation system as the concept behind evaluation at the higher education level is to judge the capacity to learn, understand and apply the learning experience, unlike in primary and secondary levels of education. Over time, evaluation and certification systems may take various forms which may include on line evaluation, acquiring credits through online modules,etc. The evaluation processes need not be identical for all the students even those from the same discipline/batch and also follow variable timelines.

It is time to de-emphasize the evaluation process, plan and strengthen the teaching-learning experience of students whether on line or on campus, and facilitate and train students to acquire self-responsibility for learning, which is expected at the higher education levels. The change in emphasis is warranted as field experience within the institution indicates a sense of prioritization that a rigorous evaluation mechanism is a proxy for sound and vibrant teaching-learning opportunities. □

# Role of Open Book Examinations in Managing Quality of Higher Education in Pandemic Situations

Medha Kulkarni\* and Gurpreet Attal\*\*

With the mounting health deathtraps associated with the COVID-19 pandemic, educational institutions all over the world are adopting newer ways of functioning. As the pandemic has hit the economy badly covering all the sectors, the education sector cannot be the exception. The economy rapidly gets hampered due to the lockdown, but it also gets revived when the market starts operating. The impact on the economy can be easily tracked and correcting measures can be taken. This is not the case with the education system. In the education system loss that happened due to the pandemic will be seen in the long term in terms of the quality of students, which is a major concern for the whole education sector.

Although educational institutions have now set up and smoothly functioning with online mode of education. Today students' admission, teaching, and learning have undergone a 360-degree change. Virtual classrooms have made studies uninterrupted, and universities have started online courses. Teachers and faculty members have changed the pedagogies, teaching modes, and methodologies. Likewise, students have also changed their learning methods. But attaining quality education in this pandemic has remained a big trial and error, which may or may not result in. In this present system, still there is scope for improvement which help in bringing quality to higher education. Since assessments and evaluations form the major part of the education system and ultimately define the quality. The alternative measure would be to shift the focus toward Open Book Examination.

An "open book examination" is one in which students are allowed to refer to either class notes and summaries or a "memory aid", textbooks, or other approved material while answering questions. It is like question paper is given to students prior to sitting the formal examinations or are to complete as a 'take

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home' exam. In law education, it is quite a common practice. But rarely it has been used for other streams. Now it is a time for the education system to think beyond the stereotypic evaluations and opt for the Open Book Exam system. Implementing the Open Book Examinations in pandemic situations is like killing two birds with one stone. One is that Open Book Examinations can be taken easily online/offline which is complacent with pandemics, and another is it improves the quality of higher education. That's the reason why Institutes across the world have used this method to conduct examinations even before the Covid-era. The same is followed by Delhi University, Pondicherry University, and Karnataka State Open University (KSOU) in India as the coronavirus pandemic spread.

## Higher Education at a Glance

The system of Higher Education has many problems like a chronic shortage of faculty (High Student Faculty ratio), poor quality teaching, inadequate infrastructure facilities, obsolete and rigid curricula, and pedagogy, lack of accountability, etc.

Although the Indian Government is striving to put Indian higher education on the global map in research, innovation, and teaching, quality is a challenge in higher education in India. Higher Education Institutions are in search of quality and excellence, but the system is busy giving access only. In managing that both have remained elusive. As a result, only a few premier institutions could find a place in the top 200 in the world rankings.

Quality in higher education can be figured out by a few factors such as Gross Enrolment Ratio (GER), outturn ratio, and employability. The availability of higher education has now increased significantly. In absolute terms, the increase in access to and expansion of higher education in India has been phenomenal with a considerable increase in student enrolment and no. of institutions (Panda and Garg, 2019).

At present, higher educational institutions in India are constantly striving to develop, the number of students enrolling in universities is 37.4 million with a GER of 26.3 (calculated for the 18-23 years

of age group). it is also one of the key targets of NEP 2020 is to raise Gross Enrolment Ratio (GER) to 50% by 2035. This growing enrollment coincides with a better outturn ratio (passing ratio). But when it comes to the employability of these students, numbers are not satisfactory. India Skill Report (2020) which provides a screening of the talent landscape in our country states that employability is merely 47 per cent currently. The problem of unemployability is due to the poor skill sets possessed by students and the prevailing skill gap even after pursuing higher education.

One of the possible reasons for the same might be in India Higher education is passing through a phase of unprecedented expansion, marked by an explosion in the volume of students, a substantial expansion in the number of institutions, and a quantum jump in the level of public funding. Here, it becomes imperative to study the Role of AICTE and UGC in giving approvals to the institutions under the burden of accelerating access to higher education. Mushrooming of new technical institutions, especially in Tier II and Tier III cities have changed the way higher education should be imparted to students. The aftermath can be seen in terms of poor participation of students in constructive research activities. Ideally, Higher education institutions must have proactive participation in research activities.

It is commonly observed that, inadequate research activities are one of the responsible factors for institutions poor ranking or accreditations. This has a bearing on our (Indian) representation globally which indicates poor participation in filling number of patents (intellectual property). Evidence shows that, 76% of patents filed in India in last 13 years were by foreign companies. Nearly eight out of every ten patent applications filed in India in more than a decade have been by foreigners residing abroad. It is not due to a lack of talent. and it is also seen that investments are also improving in the private sector. But the real crux/ problem is not having the right ecosystem. Even Former ISRO chairman K Kasturirangan, who also headed India's committee on New Education Policy 2020 has proposed National Research Foundation (NRF) and is of the view that India should improve research as fast as we can and create an environment that leads to an ecosystem of more innovation and products that are patentable. This ecosystem points out the educational ecosystem in which assessment and examination must necessitate the high-order thinking of the student and not superficial learning.

## **Realizing the Quality of the Present Higher Education System**

Outcome-based educational theory bases the education system around goals by the end of the educational experience and expects each student to be at par with global graduate attributes, but these expectations are hardly met by the present system of education. As per Bloom's taxonomy for effective Learning, Higher education is expected to be more focused on drawing connections, justifying a choice, and producing new work. But these expectations are barely met by the present system of education. Unlike conventional memory testing examination which is still focusing more on learning rather than contributing.

As one size does not fit all, a similarly conventional education system does not fit or fulfill the needs of all programs or courses. Further, assessments and evaluation form a major part of the education system which does not fit in with the need for assessing and evaluating the contributions made by students. Instead, it is carry forwarding the conventional methods evaluating the learning made by students i.e., "Mug up and Vomit" with less focus on evaluating the contributions and ultimately defining the quality. Malpractices in the examination are a major cause of worry. Since the quality of education and poor assessments of the students cannot go hand in hand rather it has an inverse relationship. Here it becomes imperative to understand the need for a better assessment and evaluation system which will quench the thirst for quality in higher education.

## **Dwindling Quality of Higher Education in the Pandemic Situation**

To ensure minimum contact in view of the COVID-19 pandemic, most of the institutions had to rush into digital teaching and learning. It is not an exaggeration to say that very few of them were knowing the bases of online education. Since the circumstances were compelling every one of us to turn online from offline, the quality which was a struggling factor in offline education has got the worst hit in the pandemic.

Higher education ideally motivates students to explore, experience, and discover. Since the system provides surface motivation which in the end increases the turnout ratio and poor employability. Furthermore, poor evaluation, rote pedagogy, learning techniques,

etc. fails to engage the students to develop skills required for performance and make a contribution above and beyond the boundaries set by the system to satisfy the higher-level skills of taxonomy.

Students' learning circumstances have changed in the Pandemic, Students may not have an internet connection, a device to use, no proper instructions or training on how to use online platforms, or a space to learn in, sometimes content is not accessible. Some students may not be available to meet at specific times. Others may have a lot going on in the background but are unable to connect or approach the teachers, lack of training for teachers, etc., has added fuel to the fire and has failed to create creative space in enhancing student engagement.

In the classroom, when we interact with students in person every day, we can guess the engagement level of students by the observable engagement behavior 'say, stay and strive' and can use a different approach to teaching-learning. But during online learning, it is harder to have those one-on-one conversations and observe the behavior of students, and know the engagement level.

### **Redeeming Quality through OBE**

Higher Education should result in a lifelong process of mental development that continues even after completing the degree. In OBE focus is on acquiring skills and creating knowledge. In other words, teaching will no longer be the transfer of information from the faculty to the student: it will be the training of the mind in certain intellectual skills. Students will be more involved in information processing instead of merely memorizing the content. In closed-book examinations, students reproduce the knowledge gained or memorized in the classroom at the time of examination. On the contrary, in OBE students will be able to apply and reproduce it lifelong. The role of the teacher in OBE is to ensure an environment that triggers the development of these creative and critical abilities.

It certainly has some inherent limitations in which it is difficult to keep a check on a student and cannot be sure if he/she has got somebody's back. It is also threatened that students will not study and inclined towards copying the answers from the open books. But one should also agree to the fact that these issues are faced by universities in the present

system of examination too as malpractices. The same prevention of malpractices at University, Board, and other specified examinations (such as Maharashtra Prevention of Malpractices at University, Board and Other Specified Examinations Act, 1982) is already in its place. And cases under respective state acts are like a quagmire: the more you dig, the more dirt you are likely to find. Then it becomes logical to follow the alternative system of examination which has the same cons/limitations. At least, by following the Open Book examination the result will surely contribute more to the quality of higher education. One should not forget that Open books help you with facts and description, but they cannot help you with conceptual and application-based questions as one must have basic conceptual knowledge on that matter. When it comes to higher education (as referred to in Bloom's taxonomy) students should be able to achieve the top of the pyramid i.e., to analyze, evaluate, and create and not the basic one.

The open book examination should be introduced to remove rote learning and more superficial application of knowledge, especially at the higher education level. What makes OBE different than traditional examinations (Closed Book examinations) is the type of questions that require students to answer in more analytical and critical ways thus encouraging higher-order thinking skills in students. Questions in open book examinations need to be devised to assess the interpretation and application of knowledge, comprehension skills, and critical thinking skills rather than only knowledge recall. For bringing quality to higher education students must take extra efforts to solve the questions of higher-order thinking. A superior examination system must not be lulling the student by giving a dishonest sense of security which in turn results in only a number of students getting passed but failing in proving the quality of highly educated students.

### **Conclusion**

While making a deliberate attempt to transform the economy into the Knowledge Economy, giving inclusive and accessible higher education somewhere quality has met each other halfway. The pandemic has surely added fuel to the problem of quality. As the education sector is undergoing a tectonic shift, faculty, and students are grappling with this new normal. But it is time to be proactive

instead of reactive to the pandemic. Now it is crystal clear that the pandemic is not going to end in a short time. The way higher education was imparted has changed radically and perhaps for the long term. The covid-19 pandemic has given us enough time to think about how we can overcome and manage quality in every aspect of Higher Education. In this situation, it is pertinent to follow OBE as a strategic priority. By following OBE we encourage students to go beyond the literal text. Online OBE is the most suitable evaluation technique in the pandemic which assess the student skills relating to identifying, applying, analyzing, synthesizing, and evaluating information instead of merely recalling the facts and delivering literal text. Obviously, OBE challenges the traditional mode of examination and requires a different ecosystem. But it will surely, improve the quality of higher education especially, in the pandemic phase, and help in making the higher education sector more resilient.

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# History of Examinations Reforms in Higher Education in India

Mahabir Singh Dhankar\*

In the year 1854, Sir Charles Wood, the then president of the Board of Control in Britain, sent a despatch to Lord Dalhousie, then Governor General of India. It was desired in this despatch that the functions of the university of London should be followed by upcoming universities in India. After his despatch and advice the University of Calcutta, University of Madras and University of Bombay were established in 1857 by the East India Company. The concept of affiliating universities was adopted in these universities and these universities started examining the students admitted to colleges affiliated with them. This resulted in the way students and teachers focussed on memorisation in place of understanding because examination took a prominent place in Indian higher education system. Students passing their degrees with good marks in examinations got good jobs and thus demand for degrees increased which resulted in the creation of new colleges with poor facilities except for a few institutions having good infrastructure and libraries on behalf of some religious organisations.

## Early Post-Independence Reforms

After independence in the year 1948, Dr. Sarvepalli Radhakrishnan, an eminent Indian philosopher who later became president of India, chaired the meeting of the University Education Commission as the first chairman of the commission after independence, found that despite many reports and recommendations of various committees there was very little improvement in the examination system in universities. The University Education Commission (1948-49) felt the gravity and magnitude of the problem and went on to say, "We are convinced that if we are to suggest any single reform in university education it would be that of examinations."

University Grants Commission (UGC), which came into existence in 1956 with the motive to take care of higher education in the country, constituted a committee in September 1957 which was headed by S R Dongerkery, then Registrar of the University

of Bombay, to examine the problems connected with examination reforms. The committee took the view that "Examination is an aspect of the educational process which is intimately linked with its other important aspects – teaching and learning – and that teaching, learning and examinations actually constitute a unity of functions. Teaching as well as learning are bound to be affected by a defective examination system since both are dominated by the objectives that govern examinations." This committee recommended the institution of tutorials, seminars, continuous internal evaluation, conferences, and seminars and to evaluate students on the basis of other methods than the subjective or essay-type questions in examinations.

On the basis of comprehensive and detailed discussion with college and university teachers, the committee recommended calling Dr. B S Bloom of the University of Chicago, an expert in the field, to advise the commission on examination reforms and subsequently four seminars were held at universities of Osmania, Patna, Aligarh and Poona during 1958-59 under the guidance of Dr. B S Bloom and UGC published the proceedings of these seminars under the title "Evaluation in Higher Education". After all these activities, a ten-year phased program of examination reform was prepared and it was accepted by central and state governments a Central Evaluation Unit was established but unfortunately, this ten-year program was not implemented with any vigour.

As per the report of the Indian Education Commission (1964-66), there was no progress in examination reforms and the following are a few recommendations of the Education Commission (1964-66) many of which are very relevant even today:

- (i) UGC should set up an examination reform unit for higher education at the highest level in consultation with universities which should also set up their respective examination reform units.
- (ii) The re-orientation of university teachers to adopt new and improved techniques of evaluation by way of seminars and workshops. The central

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and local examination units should own this responsibility.

- (iii) The grading of examination results should be done on a relative basis in place of an absolute basis.
- (iv) Measures be taken to abolish the system of payment of remuneration to examiners and evaluation be made a part of duty. It is suggested that each teacher should evaluate up to 500 answer scripts during an academic session.

In the year 1967, UGC constituted a committee under the chairmanship of Prof. FC Auluck of the University of Delhi to review the examination system of central universities and to suggest necessary changes in the measurement and evaluation with a view to ensuring greater reliability and validity. The committee studied in detail the examination system of Aligarh Muslim University (AMU), Banaras Hindu University (BHU) and Delhi University on the ground that AMU and BHU switched to a semester system from the academic session 1967-68 and Delhi University introduced a comprehensive system of sessional assignments and drafted model question papers in certain subjects. Following are the recommendations of the committee in brief :

- (a) Nature of Examinations: In place of only essay-type questions in the examinations there should be a mix of essay type, short answer type and objective type questions.
- (b) Sessional work: Quizzes, viva-voce, projects, fieldwork etc. be made a part of sessional work during continuous internal evaluation and moderation of marks be done in internal marks. In addition, sessional awards are displayed just after the evaluation.
- (c) Appointment of examiners: The system of appointing external examiners at the PG level be abolished but it should be continued at the UG level where the number of examinees is very large.
- (d) Number of Examinations: In place of conducting examinations at the end of the semester/year, the universities should arrange examinations in parts and space them conveniently.
- (e) Setting of Question Papers: Series of seminars be conducted for teachers to improve the quality of question papers and there should be a board of examiners to examine the question papers set by different teachers.

- (f) Uniformity in Evaluation: The paper setter be asked to give detailed instructions on awarding marks by evaluators so that uniformity can be maintained in evaluation. In addition, there should be ceiling on the number of answer scripts to be evaluated by a teacher.
- (g) Grade System: Adoption of a grading system was recommended along with marks. In case the number of students is less in an academic programme then only marks be awarded.

### **Reforms Initiated in the Nineteen Seventies**

In the year 1972, in a meeting of the commission held on August 2, a very serious effort was made by UGC regarding examination reforms and A Plan of Action prepared by the Ministry of Education and Social Welfare was endorsed which was later published for the first time in May 1973 and then its revised edition was published in July 1976. It was printed twice in April 1981 and December 1990. Based on the Plan of Action –1972 the UGC conducted four zonal workshops in 1974 to discuss problems relating to examination reforms, autonomous colleges and postgraduate education. The workshops were held from July to November 1974 at Madurai, Ahmedabad, Chandigarh and Bhubaneshwar. On the part of UGC 1970 to 1980 was a decade of examination reforms. Following is the summary of the Plan of Action-1972 :

1. Colleges and universities should maintain their own standards and the degree awarded to students must have the name of the institution from which the student has passed the degree.
2. Those who teach should assess the ability of students means internal assessment be given due weightage and the final mark sheet issued to students should separately reflect the internal and external marks.
3. Performance of students should be evaluated at regular intervals during a semester.
4. It was felt that marks on a scale of 0 to 100 give a false impression of accuracy therefore grading system using letter grades should be used to record the student performance.
5. If a student is unable to pass a course of a degree programme then it should not affect the other courses means the candidate is to be promoted to the next class with reappears or backlogs.

6. A system should be devised to examine the creative thinking and comprehension of the subject at the national level means some central agency should conduct such examinations.
7. UGC should ask the universities and colleges to submit the question papers used by them to assess the standard of their respective institutions.

The appendices in the 1973 and 1976 editions of the Plan of Action have guidelines on internal assessment, grades and question banks. The revised edition of 1976 contained the recommendations of all zonal workshops on the principles and mechanism of the grading system.

A document on three important academic issues was released by UGC in 1988, out of three issues in this document, one was on examination reforms called 'Minimum Programme of Examination Reforms' which is reproduced below:

*Every university/deemed to be a university shall have to adopt the following minimum examination reforms.*

#### Syllabus/Question Paper

- (a) The syllabus in each paper should be demarcated into well-defined unit areas of content along with a topic-wise breakdown. The units may be numbered.
- (b) Examiners should be free to repeat questions set in a previous examination. This is necessary in order to ensure that students do not leave out important portions of the syllabus. Instructions to the paper setter should be amended accordingly.
- (c) There is often a very wide choice given to students for answering questions, say 5 out of 10. Such overall choice restricts the area of knowledge with which a student can pass an examination and is therefore undesirable. If there is a choice, it may be provided by alternate questions in each unit of the syllabus.
- (d) No examination should be held without fulfilling the requirement of a minimum number of lectures/tutorials/laboratory sessions etc. which should be clearly laid down by the university.
- (e) Examinations should be conducted in a fair and impartial manner. Cheating in examinations is made a cognizable offence. Universities must take all steps for the proper conduct of

examinations such as effective security measures, proper supervision and invigilation, cordoning off the examination centres from the range of loudspeakers and other interference, flying squads and stern action in all cases involving copying and use of unfair means.

The UGC continuously supported its Plan of Action for the implementation of examination reforms. The Association of Indian Universities (AIU) which works on examination reforms extensively, published many status reports.

#### Present Age Reforms

After a gap of thirty years, UGC in its 532<sup>nd</sup> meeting in 2018 constituted a committee headed by Prof. M M Salunkhe, the then Vice Chancellor of Bharati Vidyapeeth, Pune to recommend examination reforms in the light of Outcome-Based Evaluation. But during this period AIU conducted seminars and conferences on examination reforms almost one conference on this topic every year. In addition, the proceedings of all conferences were published in its journal University News which played an important role to keep the agenda of examination reform live. The Salunkhe committee observed that the current examination system of Indian universities, more often than not, insulates students from the quest of knowledge, excitement of discovery and joy of learning. The committee studied the international scenario as well and commented "In western countries, most of the universities and institutions of higher education are assessing the students wholly on internal evaluation methods following the principle – those who teach should evaluate. The system followed in western countries has been accepted by the whole world and the students coming out of those countries are valued higher than the degree holders of Indian universities". It was felt that the reforms in examination in general and evaluation, in particular, are much needed to ensure credibility and the outcome of the assessment system.

Before the final meeting of the committee, UGC placed a public notice on its website inviting suggestions from teachers, students, controllers of examinations and experts in the field on examination reforms. Based on the suggestions received a discussion paper was prepared which was considered by the committee while making its final recommendations. This committee put a lot of stress on Outcome Based Education and submitted its 87 pages detailed report in 2018 with the title

“Evaluation Reforms in Higher Education Institutions in India – Recommendations”.

Following is a very brief summary of some important recommendations of Salunkhe Committee:

- (1) Taking into consideration ground realities the weightage of internal assessment should be 30% and it should reach 50% in a time-bound manner without compromising the quality and standard. In addition, internal assessment be made on relative grading in place of absolute grading.
- (2) 70% of questions in the final examination question papers be asked from the Question Bank and periodic audits of the question papers should be conducted with an objective of quality monitoring by the respective State Council of Higher Education.
- (3) Equivalence Committee be established by universities for uniformity in grading and credit transfer keeping in view the course of contents of academic programs.
- (4) An examination reform cell at the state level be created which can monitor the examination reforms and can do moderation, if needed.
- (5) With extensive use of technology, universities should think of On Demand Examinations and online delivery of question papers. A national board may be established in this regard.
- (6) To check the malpractices during post-examination period the identity of students and examiners be kept confidential from each other.
- (7) Development of Question Banks by universities be given top priority.

In addition to detailed recommendations on examination reforms, this committee discussed very comprehensively the Rationale for Examination Reforms.

All India Council of Technical Education (AICTE), the council responsible for maintaining standards of technical education in the country, felt that Outcome Based Education (OBE) has emerged as a major reform in global engineering education. The country that wants to be a signatory member of a multinational agreement for mutual recognition of engineering degrees i.e. Washington Accord must implement OBE. Indian accreditation agency National Board of Accreditation (NBA) made it mandatory for engineering institutions to adapt the OBE framework for their curriculum design, delivery and assessment.

Keeping in view the objective of OBE, the AICTE constituted a committee headed by Prof. Ashok S. Shettar, then vice-chancellor of KLE Technological University, Hubballi, which prepared a policy for technical institutions named “Examination Reform Policy – November 2018”. In this policy examination reforms are presented in four sections:

Section – 1 had most important drivers for examination reforms in the Indian engineering education system.

Section – 2 brings out strategies to be adopted to map assessment with desired student learning outcomes.

Section – 3 highlights the necessity of designing question papers to test higher-order abilities. The application of Bloom’s taxonomy framework to set question papers is discussed in detail in this section.

Section – 4 discusses the challenge of assessing higher order abilities and professional skills through a conventional examination system.

At the end of the policy, the appendices are given which contain the supplement material that is helpful for universities and colleges to implement the recommendations.

Today, in the year 2022, most of the institutions of higher education in the country are making efforts to implement the Examination Reform Policy – November 2018.

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# Technology for Assessment and Evaluation

Kiran Lata Dangwal\*

In today's age, the student can grasp and climb up the ladder of success very quickly because of technological exposure. It is about how we can enrich them with tools and knowledge to navigate through and get to the top by themselves. The digital age has initiated a generational shift where children are increasingly likely to have openhanded access to technology. Technology is a powerful ally for teachers, especially in evaluating student learning. With the use of digital formative assessments, teachers can expedite their ability to provide student feedback in real time. Evaluating, revising, and grading assignments may quickly become an uncomfortable part of a teacher's daily routine. With the advancement of mobile technology and modern internet tools, educators may now evaluate students' work swiftly and effortlessly.

## Assessment

Assessment is the process of acquiring information about what pupils know as a result of their educational experience. Digital evaluations allow teachers to deliver personalised feedback to students faster and in real-time than traditional non-digital paper and pen formative tests. Education is no longer limited to traditional classrooms due to technological innovation. Online teaching necessitates the development of new educational platforms and evaluation tools for instructors, as these technologies assist teachers in tracking students' educational progress and providing them with learning materials.

## Online Evaluation Tools

Through quizzes, examinations, and surveys, online assessment tools assist in assessing and evaluating students' learning. A teacher uses these tests to measure pupils' progress in various learning areas. These tools assist teachers in developing assessments based on curriculum and learning development requirements. They enable teachers to track students' data for future reports, allowing them to learn how to encourage and urge pupils to

perform in their exams. Apart from administering tests, teachers can use these tools for a variety of purposes, including:

- showing a student's progress to parents;
- understanding a student's reaction to the classroom environment;
- evaluating a student's abilities and skills in a specific subject; and
- assist a student in transitioning from one class to another.

## Purpose of Assessment

Assessment is widely defined in the educational setting as a continual process of obtaining evidence of learning in order to enhance future learning and performance. Prospective evaluation systems that are successful closely incorporate the needs and viewpoints of instructors and their pupils.

The assessment's purpose is to evaluate and enhance student learning, however, the objectives vary based on the sort of assessment utilized. Assessment application within this wider framework often falls into three types, including

- formative assessment.
- summative assessment, and
- diagnostic assessment,

**Formative assessments** are used to examine how effectively a student is understanding the subject throughout a course or session. They work best when they are continual, and consistent, and offer learners vital feedback. Formative assessments are intended to test how effectively students react to teaching in a specific subdomain of accomplishment and to identify whether instructional revisions are necessary.

**Summative assessments**, often known as final exams, examine what a student has learnt after finishing a course. They can assess how effectively the content supports the overall learning objectives of the course. Summative evaluations are intended to measure learning by quantifying how far one has progressed in a certain academic topic. Summative evaluation methods enable educators to measure

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students' overall achievement. The Learning Management System (LMS) and electronic portfolios (e-Portfolios) are two main ways of employing technology for summative assessment.

### ***Learning Management System (LMS)***

A learning management system (LMS) is frequently regarded as the focal point of a teacher's summative assessment toolset. Accessibility is critical when using virtual formative and summative assessment tools. Most Learning Management Systems contain incorporated tools that allow most teachers, regardless of technological experience, to easily access them. While chatting with their friends and teacher, students may access materials and tasks. Parents may keep track of their children's growth while engaging with the teacher.

### ***Electronic Portfolios***

An E-Portfolio is a digital record of a student's work/progress that is utilised at all educational levels, from early childhood to higher education. As they encourage overall learning, e-portfolios can support deep learning and reflective behaviours across multiple learning contexts.

**Diagnostic assessments** are intended to measure achievement in a specific area as well as all related subdomains. Individuals who are having difficulty learning or who have been identified as being at risk of academic failure are given diagnostic tests. The results of well-designed diagnostic tests assist educators and special educators decide what and how to educate.

These three sorts differ in their aims, scheduling, who is being administered, and test construction and design.

### **Employing Technology to Assess Students**

Today's paradigm has shifted away from traditional ways and toward tech-enabled, participatory procedures, with technology playing a key role. Using current technological tools to analyse students' interests, weaknesses, and preparation can help instructors improve their teaching tactics and take that giant step toward assuring their students' success. The following are some of the benefits of employing technology to assess students:

#### ***Environmentally Conscious***

Adoption of environmentally friendly learning

strategies in the classroom aid in the conservation of paper and energy. When schools employ technology for evaluation in an environmentally sustainable manner, they conserve energy, fuels, and raw materials.

#### ***Quick outcomes***

Students nowadays demand immediate results from their tests. Using digital assessment tools, teachers may deliver results without having to wait a few days. When the period between tests and outcomes is reduced, students can utilise that opportunity to develop their learning skills.

#### ***Boost Individualized Performance***

Teachers have always been limited to providing general, one-size-fits-all counsel to the bulk of their students. We can provide thorough, deep, and insightful analytics for students using technology. Data on their learning, practise, and test histories may be used to determine their particular strengths and shortcomings on a variety of measures ranging from conceptual clarity to speed of attempt. Tech-enabled solutions that focus on individualised practice can give better study recommendations and personalised practice routes for each student.

#### ***Reduces Manual Labour***

Conducting an exam or assessment takes a long time since a teacher has to prepare handwritten question paper. Conducting an offline assessment necessitates manual efforts, from assigning seat numbers to selecting invigilators for the test venue. An online assessment programme assists in the creation of a bank of questions and allows teachers to administer summative and formative tests.

#### ***Enable Assessment Customization***

Traditional evaluation questions might be objective or subjective. Many educational institutions utilise the same assessment approach, however, teachers can evaluate their pupils in numerous ways. Teachers may create unique and exciting exam modules by using assessment tools. They can alter the test paper layout and design the paper based on the theme, subject, technology, and student abilities.

#### ***Easier and More Targeted Evaluation***

Technology now allows for idea clarification in themes that are critical for an individual learner.

It enables more engaging and interactive classes, as well as individualised education to suit students' learning needs. Giving educators precise insights on each student's learning path as well as overall performance will allow them to focus their time and energy on their students' knowledge gaps, build on strengths, and even prepare for competitions. Tests may be customised for practise in weaker areas, and students receive quick results, which was previously not feasible in the offline mode. Continuously evaluating student performance can provide instructors with a better knowledge of their student's strengths and shortcomings.

### ***Simple Way of Item Development***

Because of its versatility in combining media and researching new item categories, technology promises greater measuring of higher-order comprehension and performance. The use of technology-enhanced test items in assessments is still largely unexplored, and developing items requires a delicate balance of creativity, cost, and efficiency.

### ***Test Scoring Automation***

One of the most significant advantages of technology-based assessments is their capacity to automate data collection and scoring. This automated or digital scoring technique improves efficiency and accuracy. This is accomplished by eliminating the need for people to enter data, compute raw scores, transfer scores, search for and identify relevant look-up tables, calculate domain scores, and execute a variety of score conversions. Most traditional educational assessments are scored on the assumption that all items on a particular exam are equally capable of indexing the construct of interest.

### ***Administration of Tests***

Technology-based assessments have the ability to simplify and streamline the administration process while also providing a variety of opportunities for learners to demonstrate their knowledge. Computer-assisted assessments with automated scoring increase usability and reduce instructor administration and scoring mistakes. Children can use them at their desks or while sitting on the floor, and they can move them throughout the classroom, providing greater flexibility for test situations and more options for specific student preferences.

### ***Provide Curriculum and Individualized Learning Support***

If students are given overly simple work, they are unlikely to advance as they should. Technology has a lot of potential for assisting educators in implementing data-driven instructional changes. Virtual reality, augmented reality, and mixed reality technologies that are intuitive, ordinary, and authentic to the evaluation process give students and teachers with more tailored educational data for developing learning experiences. Technology can also assist administrators in making data-driven adjustments.

### ***Enhance Feedback***

With real-time evaluations and immediate polling, cloud-based technology enables teachers to measure student understanding while they are studying. Educators may personalise their lectures to the genuine requirements of each student if they instantly detect and rectify any gaps in knowledge.

### ***Recognize and accommodate differences.***

Teachers have always attempted to satisfy the requirements of all their students, meticulously creating and duplicating various examinations for different students according to their abilities, because everyone learns differently. This approach is made significantly easier by classroom technology.

### ***Increase Adaptability***

Cloud-based learning allows students to take online exams at a time that best matches their particular learning style and needs. They only require an internet-capable device and a web-based or virtual environment.

### ***Compile Knowledge***

Students can make podcasts and presentations using audio and video technologies to evaluate their learning. Students will not only consolidate their information in a familiar medium, but they will also create a useful learning resource for other students.

### ***Enhance Instruction***

Teachers can utilise technology to increase the productivity of their own work. Spreadsheets may be used by teachers to track student work as well as their teaching strategies. If a set of students is under performing in one area, this type of record keeping might identify areas that the instructor should focus

on in their own instruction. These technologies can also assist administrators in evaluating and improving teacher performance.

### ***Enable More Advanced Question Types***

Beyond the restricted multiple-choice, true-or-false, or fill-in-the-blank alternatives that have typified traditional assessments, technology-based exams allow for a range of question formats. Students can use technology-enhanced questions to display more complicated thinking and express their grasp of content in ways that were previously impossible to assess using standard methods.

Performance-based questions allow students to design their own responses rather than picking the correct answer from a list; they can assess students' cognitive thinking abilities as well as their ability to use their knowledge to solve genuine, relevant situations.

Students can provide their replies in the web interface of performance-based tests, and their scores can be blended with machine-scored items in the same system, producing entire test results.

### ***Enhances Evaluation***

In a number of ways, technology may help us conceive and reinvent evaluation. Problems can be set in real-world settings in which students accomplish tasks, or they can be multi-stage scenarios that imitate true, progressive interaction with the subject matter. Teachers may access information on student progress and learning throughout the school day, allowing them to customise lessons or intervene to solve specific learning gaps.

### ***Assess Complex Competencies***

Noncognitive competencies are assessed using technology, as is the value of gauging knowledge, skills, and talents.

### ***Improve Accessibility***

Depending on what the assessment is measuring and recognised learner requirements, special features such as the capacity of technology to raise letter sizes and modify colour contrast, text-to-speech, multilingual dictionaries, and glossaries can be included in exams and made available to students. The inclusion of seamless accessibility elements in technology-based examinations reduces the need

to separate out particular students for further help, which benefits both students and teachers.

### ***Give Real-Time Feedback***

Formative assessments based on technology can provide real-time reporting of outcomes, allowing stakeholders to learn students' strengths and limitations while leading them to make meaningful, actionable interpretations of assessment data. Traditional exams cannot view, evaluate, or respond to student work as rapidly as these evaluations can. Summative evaluations based on technology can allow for speedier turnaround of findings.

### ***Embedded the Learning Procedure***

Embedded assessments have the potential to be beneficial for diagnostic and support purposes by providing insights into why students are struggling to learn concepts and how to customise feedback to address these concerns. The goal of game-based assessment is to draw parallels between video game design and next-generation learning and evaluation.

### ***Adjust to the Learner's Ability and Knowledge***

Computer adaptive testing has improved tests' capacity to properly predict what students know and can perform throughout the curriculum in a shorter testing period than would otherwise be required. For example, if a student properly answers a question, a little more difficult item is provided next; if the student erroneously replies, he or she is given another opportunity to demonstrate knowledge in a different way. Because adaptive tests target information and test questions that are appropriate for each student's ability level, the adaptation results in more precise scores for all students across the achievement spectrum in a much shorter time period.

### ***Evaluation Based on Multiple Tasks Performed Using Digital Technologies***

#### ***Online Quizzes***

Quizzes are a common kind of assessment. When combined with technology, these quizzes are a wonderful approach to stimulate student learning. Multiple-choice, fill-in-the-blank, and hotspot questions are examples of quiz questions. Online quizzes are useful for assessing learning outcomes across a large audience. Because each student takes the same exam, outcomes from various classes,



schools, or communities may be compared and contrasted.

### ***Essay/Open-Ended Questions***

One of the most common qualitative evaluation strategies is open-ended or essay-style questions. They encourage students to explore their thoughts, feelings, and views while also measuring their overall understanding of a topic. This style of inquiry promotes critical thinking and is ideal for assessing higher-level learning.

### ***Activities Using Drag-and-Drop***

Drag-and-drop assessments demonstrate a learner's capacity to connect information and use knowledge to solve a practical problem. A drag-and-drop activity may include both images and text, giving it a real-world sense that is both tough and entertaining.

### ***Internet Interviews***

To offer learning a more personal touch, you might add a video conference into your online teaching. Students can demonstrate their skills in language, music, nursing, and other disciplines via quick online interviews. Interviews can also involve a mentoring component, allowing students to receive quick feedback from teachers and feel more in control of their studies.

### ***Simulations of Dialogue***

A dialogue simulation is a method of preparing students for real-world talks with clients, co-workers, and others. When designing a discussion exercise based on a circumstance that a student may experience on the job, inform them of what to expect and create a secure environment for them to practise their reactions and replies.

### ***Online Polling***

Polls provide direct input from the audience on their learning experience. They may be used to assess everything from learning satisfaction (Kirkpatrick Level One feedback) to why a student chose a specific option during a lecture. Online surveys are extremely interesting for students because they allow them to express themselves, make their voices heard, and are quick to complete.

### ***Interactive Games***

Because game-based evaluations are deemed

enjoyable rather than "tests," they are often a good predictor of genuine abilities and knowledge. Furthermore, they have been found to improve learning by encouraging the development of non-cognitive abilities including discipline, risk-taking, teamwork, and problem-solving.

Quizlet and Kahoot are two popular tools that teachers may use to create interactive learning games that are fast-paced. Quizlet allows you to construct a study set of online flashcards for learning words and meanings, whereas Kahoot allows you to make entertaining quizzes and give students points for answering fast and accurately.

### ***Peer Review and Evaluation***

Peer evaluation reverses the roles of the teacher and allows students to examine and modify one another's work. Such exercises allow each participant to reflect on their knowledge and then provide feedback in a consistent and organized manner.

### ***Discussion Board Posts***

A forum is an online discussion board that is organised around a certain topic. Asking students to contribute to a forum post is a great approach to assessing their comprehension, engaging their interests, and promoting their learning. Students are given a critical thinking topic based on a lesson or a book in this assignment and are encouraged to reflect on both. Their responses are placed on a forum, and their peers are given the opportunity to respond.

### ***Assessment Tools in Technology***

There are several methods by which evaluation might take place. Assessment is a wide phrase that incorporates any activities in which instructors and students collect information that can be used to assess and alter teaching and learning at the end of a specific time period (Timmis et al., 2016). Assessment is divided into two categories: formative and summative techniques. Formative assessment is a method for assessing how learning is progressing toward an ultimate objective. Summative evaluation, on the other hand, is used to examine the end consequence of a learning activity. Both of these methods of assessment are critical for present and future students' learning. Teachers' abilities can increase dramatically when they apply evaluation methods on a regular basis.

Year after year, online educational technologies advance. Students are becoming more comfortable with them, and paper testing is losing its value and requirement when it comes to knowledge evaluation. Learning Management Systems and feedback tools - these digital technologies are designed to offer students with quick and fair evaluations immediately following a test.

Educational technologies for student evaluations are extremely advantageous since they save time, make the learning process more complete and friendlier, and provide immediate feedback. Teachers and students benefit from digital assessment tools. Teachers utilise assessment to evaluate student comprehension, collect crucial data on student learning, and then use that data to alter instruction.

Teachers can see significant increases in their performance.

Educators now have access to a wide range of instruments that enable quick feedback. Retrieval Practice is an evaluation method used during the learning process to assist students to establish knowledge networks in their minds and reinforce their learning. It enables educators to continually assess student learning while making it difficult and challenging (Agarwal, 2017). There are self-paced digital tools available that allow learners to work at their own speed. Many of these institutions are beginning to accept either technique. The following are some technological tools that may be utilised for student assessment and evaluation:

### Tools for Recording Audio and Video

- **Animoto** - create a 30-second movie summarising what students learned in a class.
- **Audio Note** - records audio as well as notes for cooperation with other students.
- **Edpuzzle** - utilize video to assess student comprehension.
- **Flipgrid** - students reply to instructions with 15-second to 5-minute films. Feedback can be provided by teachers and peers.
- **Quick Voice Recorder** - for recording classes, meetings, or audio for projects.

Create tools for quizzes, polls, and surveys.

- **Kahoot** - A game-based classroom response

system that uses internet information to produce quizzes.

- **Crowdsignal** - enables you to create online polls, quizzes, and inquiries.
- **EduLastic** - for creating standards-aligned examinations and receiving fast feedback.

Create surveys, quizzes, forms, and polls

- **MicroPoll** - make polls, embed them in websites, and evaluate the results.
- **Poll Everywhere** - create a poll or ask a question and watch the results in real time. To aggregate replies, use open-ended questions, data, and tag clouds.
- **Poll Maker** - has unique features such as enabling numerous answers to a single question.
- **ProProfs** -allows you to create quizzes, polls, and surveys.
- **Quizizz** - create quizzes and include students in the process.
- **Quizlet** - create mobile-friendly flashcards, exams, quizzes, and learning games.
- **Survey Monkey** - Useful for creating online polls and surveys.
- **Zoho Survey** - create mobile-friendly surveys and get real-time results.
- **Mentimeter** - versatile, dynamic presentation tool.
- **Assessments** - programme that helps test math skills.
- **Formative**-Excellent real-time assessment tool suitable for 1-to-1 and BYOD classrooms.
- **Plickers**-Aneasy-to-use,low-techrapid-response tool that supports formative evaluation.
- **Poll Everywhere**- A simple student response tool that engages youngsters with little setup.

Tools for brainstorming, mind mapping, and collaboration

- **Answer Garden** - online cooperation and brainstorming.
- **Coggle** -A mind-mapping tool for understanding student thought.
- **Conceptboard** – a visual tool for team collaboration.

- **iBrainstorm** - use a stylus or finger to collaborate on ideas.
- **Miro** Real-time collaboration with the entire class.
- **Padlet** -A blank canvas on which students may build and design collaborative projects.

Tools for presenting, engaging, and inspiring

- **Brain POP** - pre-recorded films on a variety of themes to help develop lesson plans.
- **Buncee** - assists students and teachers in seeing, communicating, and interacting with educational subjects.
- **Rabble Browser** – to promote collaborative browsing.
- **Random Name/Word Picker** - encourage children to guess terms by offering meanings.
- **Socrative** - to get pupils interested in a topic.

Tools for creating word clouds or tag clouds

- **EdWordle** - to aid in the collection of replies and the facilitation of dialogue.
- **Tagxedo** - to assess student agreement and foster conversations.
- **WordArt** - to make each word an active connection to websites such as YouTube.

Video and Interactive Lessons

- **Edulastic**-Effective standards-based assessment tool that monitors student progress
- **Nearpod**-Use media, videos, and interactive presentations to engage and assess students.
- **PlayPosit**-Interactive video maker has a wide range of questions.
- **Edpuzzle**-Use an interactive tool to crop, alter, and remix web video footage.
- **Pear Deck**-Interactive slideshows provide a number of opportunities for engagement and evaluation.
- **Wooclap**-A versatile polling/presentation tool with a wide range of questions
- **ClassFlow**-A powerful lesson creation and delivery tool that aids with assessment.

Get tools for real-time conversation and feedback

- **Formative** - obtain real-time findings and offer rapid response
- **Floop**-Collaborative feedback tool that assists teachers in targeting, students in responding, and revising
- **Parlay**- Comprehensive conversation platform that fosters critical thinking
- **Kaizena**- Handy add-on that allows voice and text feedback in Google Docs

## Conclusion

One way that technology may help with teaching and learning is by enhancing the capacity to assess students' abilities and knowledge during the teaching and instructional process. Assessment cannot be transformed just by technology. We must first overcome logistical and financial barriers that frequently stymie attempts to maintain, administrate, and modernise schools' electronic infrastructure. Successful assessment improvements will need equally difficult reforms to standards, curriculum, teaching, and teacher training. Technology tools are made for certain purposes. When the capabilities of technology fit with the purposes of advising, they are used most effectively. Assessment technology tools provide participation goals and criteria that describe acceptable norms. It enables the creation of interactive quizzes, surveys, and dialogue simulations for student evaluation. These technologies generate multiple-choice or short-answer questions for students to respond to, define proper answers and points, and offer feedback for correct and incorrect answers. Instant data on each student's progress may be obtained, and various resources can be instantly assigned to pupils based on their quiz results. Share assigned reading passages with the class and get recordings of those readings. Online evaluations are an important component of eLearning and should be carried out with the same attention and rigour as learning content. There are several online assessment technologies that enable the creation of engaging activities for online evaluation. Technology is not only enhancing education, but it is also changing how we assess our children and how quickly assessments can be conducted equitably.

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# Can Impact Factor be a Measure to Rank Research Publications: Time to Revisit UGC Regulation, 2018

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Organizations having commercial interests by no means should be endorsed by the government or any of its agencies directly or indirectly. Clarivate Analytics is a private organization which is selling its product WoS to academic and research institutions across the world. The Web of Science as a metric product has become quite popular among the world scientific and research community and so have researchers embraced the concept, Impact Factor. Thereon UGC being the government organization and the governing body of higher education in India should not promote the product of an organization that has commercial interests by giving more weightage to research articles published in research journals having Impact Factor. Accordingly, the undergoing discussion emphasizes understanding what Impact Factor is, how it is being marketed by the WoS, and why UGC should revisit its 2018 regulations.

Standardization is a continuous and unending process, rather, a road that never leads to complete perfection. Given the fact, the policies and programmes implemented many a time breach the expected outcome. The University Grants Commission (UGC) is a statutory organization of the Government of India and is responsible for the coordination, determination, and maintenance of standards of teaching, examination, and research in university education (UGC, 1985). The UGC has been making continuous efforts to improve the quality of higher education and research undertaken by higher education institutions across the country. More often, UGC comes up with novel ideas to improve the academic and research standards of the higher education institutions in India. The rate of success and failure of all such novel ideas rests on the amount of brainstorming through which each idea goes before being accepted and finally implemented. Sometimes some decisions look easier than they are, and as such may not get the necessary amount of brainstorming and hence may

prove disaster once implemented. Many a time some decisions being so routine and common go unnoticed even by those who are experts in that area. Research has always been one of the priority areas of UGC and other governing bodies in India as such continues to receive the attention of authorities and so are newer measures implemented from time to time to raise the quality bar of research.

Publishers do conceive newer ideas to both improve the quality of their research journals and to uphold among the global scientific community that the journals they publish are more authentic and reliable. Indexing research journals in quality indexes like the Web of Science (WoS) and Scopus is one of the key parameters to establish the genuineness of a research journal. Questions are also being raised over the quality of journal indexed by the leading global journal indexes. Still the indexes like WoS and Scopus do seek better ways and means whereby research and the scientific community of the world show faith in the citation indexing practice. Both the citation indexes enjoy a fair amount of reputation among the global scientific community whereby researchers consult these citation indexes to identify genuine research journals to publish their research results. Over the years the citation indexing services providers like Clarivate Analytics (Previously ISI and Thomson Scientific) and Elsevier do have marketed their citation indexes in such a way that the global research and scientific community has rated these indexes the most reliable and qualitative in the present date. Marketing of citation metrics by these commercial agencies has paid them off more than the desired levels. The terminologies like Impact Factor (IF) or Journal Impact Factor (JIF) (Garfield, 1955), and Cite Score (Elsevier, 2016) have become so popular among the global scholarly community that researchers have become more interested and conscious of scientometrics. It may not be inappropriate to say that researchers these days get contented by improving their research metrics rather with the research they do.

The undergoing study is an attempt to deliberate on the impact of cite metrics and how these cite

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metrics over the years have enticed and entrapped the global scientific community, who do find pleasure in following such metrics and work on improving their individual scientometrics with each new publication. But the bigger question is how a government organization can promote any private agency having commercial interests by giving more weightage to research articles published in journals with impact factor and terming them more qualitative (UGC, 2018b). This pertains to the University Grants Commission and its regulations released in 2018 about the appointment of faculty members and other academic staff in Higher Education Institutions (HEIs) across India. It is pertinent to mention that the UGC, New Delhi is the leading governing body in India which takes care of higher education in India, works directly under the Ministry of Education, Government of India, and is responsible for almost all the major decisions taken towards the betterment and quality improvement of higher education in India (India. Ministry of Education, 2023). In these regulations, UGC has mentioned that a research article shall accrue a higher research score based on the Impact Factor (IF) of the research journal in which it is published (UGC, 2018b). By giving more weightage to research articles published in research journals with Impact Factor, the UGC not only raises a question mark over the UGC-CARE list of journals but also somewhere indirectly terms its list of journals as a substandard. The UGC formulated a standard list of journals to be consulted for all purposes including academics, research, and recruitment, but somewhere intentionally or unintentionally promotes the research journals of an index, which has commercial interests. Still more, how UGC can promote metrics of WoS and undermine Scopus, by giving more weightage to articles published in journals indexed in WoS, having Impact Factor and ignore research journals indexed in Scopus having Cite Score, when both the indexes have a commercial interest and have their metric systems to market their products. These and many other questions have been discussed and deliberate in the undergoing study. The study has been undertaken with the following objectives

- To help understand that research journals recognized by the UGC in its CARE List is a standard list of journals, which should be viewed alike without any disparity.
- To deliberate on the issue of the Impact Factor

and the misconceptions thereof some researchers and academia have about Impact Factor (IF).

- To discuss why UGC should do away with the practice of higher weightage given to research articles published in research journals having Impact Factor.

### **Research Standardization**

Standardization in research is a continuous and unending process whereby researchers in the early days of their career generally publish their research results in substandard and low-quality journals but gradually learns about the quality bars which he/she has to meet to stand tall and high among his/her contemporaries. The course of research standardization has improved considerably over the years, be it the publishing of research results in in-house journals to outsourcing journal publishing to local publishers with International Standard Serial Number (ISSN) and more. Gradually, researchers realized that anything bearing an ISSN number can't be used as a quality measure to view the publication as genuine and qualitative. During the early days of the launch of ISSN numbers, the ISSN numbers were issued to both individuals and publishers on demand without ascertaining their worth and credibility to publish a research journal (Pandita et al., 2017). This was followed by a new standardization practice, what we know as indexing of journals with quality indexes like Web of Science and Scopus. Although there are several other indexes but the research journals indexed outside these two popular indexes are generally rated of dubious nature, hence are not preferred by the leading and seasoned researchers to publish their research results. Over the years the indexing of a journal with WoS or Scopus or any other quality index is seen as one of the quality parameters, as these indexing service providers have introduced some additional quality parameters to judge the quality of a research, also known as Impact Factor (IF) by WoS and CiteScore (CS) by Scopus.

### **Citation Indexing of Research Journals**

Citation indexing of research journals in quality indexes like Web of Science or Scopus or any other well recognized citation index is seen as one of the quality parameters and those journals which are indexed in all such citation indexes are rated as qualitative compared to those not indexed in any of them. It is a well-known fact that citation indexes like WoS and Scopus are the ones that are rated

above every other index and so have their designed cite metric parameters attained popularity among the scholarly community. Impact Factor and CiteScore are the two quality parameters these citation indexes have designed and marketed over the years and Impact Factor of journals has attained popularity to such an extent among the research and academic circles across the world that a fair number of researchers use the term Impact Factor arbitrarily, not knowing that these terms are proprietary of a specific indexing agency hence cannot be used arbitrarily. Students, scholars, faculty members, researchers, and other scientific community has to understand that only such research journals can have Impact Factor which are indexed in Web of Science, while the journals indexed in Scopus have CiteScore, however, the journals indexed in both the indexes can have both Impact Factor and CiteScore, provided the journal stands distinct among other journals indexed on grounds of citations received and the IF or CiteScore thereof attained. Research journals having IF or CiteScore indicates the recognition that a research journal has attained over the years, resulting in its higher citation count, hence better IF or CiteScore. Indexing a research journal is one of the steps in the line of quality parameters that a research journal is supposed to fulfill for establishing itself as a genuine and authentic source of research information. In the present-day IT world publishing research journals has become even easier, the indexing of research journals has become more important for the fact that journal publishing industry is overrun by substandard, low-quality, and predatory journals (Pandita & Singh, 2022). There is a widespread threat of predatory journals, whereby researchers both budding and seasoned are robbed of their hard work, as they fail to identify the genuine and fake journals, with the result many a times publish their research results in predatory research journals. The citation indexing of research journals helps researchers to identify the recognized and well-established research journals to publish their research results. Scopus was launched in the year 2004 by the Elsevier and has indexed around 22000 titles all across the world and so has Web of Science indexed around 21973 journals + books and conference proceedings (Clarivate Analytics, 2023; Elsevier, 2023).

### **UGC-CARE List of Journals**

With the view to promote research activities in universities and other higher education institutions across the country and to involve institutional

faculty actively in research, the University Grants Commission of India came up with an idea to integrate the research activities of institutional faculty with their career advancement. In a way, it became mandatory for faculty members to indulge in research activities, but many of the research results produced so got published in substandard, low-quality, and predatory research journals. All this ultimately resulted in UGC compiling its list of recognized journals that UGC named as UGC-CARE List of Journals (Consortium for Academic and Research Ethics) (UGC, 2019). This UGC index of research journals mostly comprises of research journals indexed in the WoS and Scopus and other popular journals outside these two indexes. The research journals indexed in UGC-CARE List outside the WoS and Scopus are generally those journals that are recommended by the higher education institutions across the country for inclusion in the UGC-CARE list each year since 2016 and to do this exercise UGC has duly constituted a standing committee to examine all such journals for inclusion (UGC, 2018a). In all, the research journals covered in the UGC-CARE list, include those indexed in WoS, Scopus, and the research journals recommended by the HEIs of the country for inclusion to the standing committee duly constituted for the purpose. This also means that UGC has to give equal weightage to all the research articles irrespective of whether they are published in research journals with Impact Factor or not, but the moment UGC gives more weightage to research articles published in the research journals with impact factor, the UGC is not only somewhere unintentionally promoting an agency which has commercial interests but is also somewhere questioning its own CARE list of journals for their authenticity and credibility.

The research journals recognized by the UGC in its CARE list is a standard list of journals and there should be no disparity to view research articles published in research journals having Impact Factor as more qualitative, hence accruing more research scores than research articles published in non IF journals. The UGC has to use the same yardstick to view each research article published in its CARE list of journals and it can't promote the commercial interests of any agency, directly or indirectly, intentionally or unintentionally, overtly or covertly.

The UGC-CARE list of journals unlike Web of Science and Scopus is simply a bibliographic index of research journals recognized by the UGC. The CARE list as of date does not serve any real good purpose

except consulted for recruitment and promotional purposes of the faculty members by the universities and other higher education institutions across the country. There is a need to give more meaning and essence to CARE list of journals to serve a real good purpose by turning it into a citation metrics on the similar lines as that of other recognized indexes, where by journals recognized by the index will be treated at par with other quality indexes. It is important to broaden the scope of the index to the extent whereby its utility may be extended for all purposes including academics, research and other professional purposes.

### **Impact Factor (IF)**

The term “impact factor” was coined by Eugene Garfield in 1955 in his work related to citation index in science (Garfield, 1955). The idea to have Impact Factor was to help the information seekers in general and library professional in particular to subscribe those research journals in library for their clientele which are both authentic and reliable, while Impact Factor of journals may act as a guiding factor in selecting research journals. Garfield in his work equated the importance of Impact Factor with that of quantitative measure developed by Gross in evaluating the relative importance of scientific journals (Gross and Gross, 1927), hence corroborating the fact that Garfield was keen to develop a mechanism whereby IF of a journal may act as a minimum quality bar while subscribing journals. However, over the years with the marking of Web of Science the term IF starting gaining broader significance and with the result today it has become a quality bar for researchers as well.

Marketing is one of the age-old strategies business people adopt not just to make their presence felt among consumers, but also to entice people towards their product. In the same way, Impact Factor (IF) is a marketing term floated by WoS, one of the leading and quality journal indexing service providers to entice the global research and scientific community towards the citation metrics to create more popularity of the research journals indexed by it among both the authors and the research information consumers. Given this fact, there is a need to understand that when we talk about Impact Factor (IF) it simply means we are talking about those research journals which are indexed in the Web of Science. Research journals not indexed in the Web of Science can't have Impact Factor because the term Impact Factor is proprietary of WoS and can't be used arbitrarily to

calculate the same for research journals outside the indexing list of WoS (Powell & Peterson, 2017). Still more, IF is a metric measure that WoS science has designed, developed, and marketed over the years to create a buzz among the academic, research, and scientific community across the world. The higher the IF of the journal the more qualitative a journal is rated and the research articles thereof published in it. Needless to mention that the Impact Factor of a research journal is calculated based on the average citations received by the research articles published in it in any given year of the research articles published during a particular period. Impact Factor can be calculated for any number of years, however, the trend generally popular among the scholarly community is to calculate the same for two years period. Under this method, the research articles published in a research journal during the two successive previous years and the citations thereof received by all such articles in the third year are calculated to determine the IF of the journal for that particular year viz., for the third year (Golubic et al., 2008). IF is also sometimes calculated for five years period and so.

### **Cause and Effect Relationship**

It may not be out of context to mention that the manifold growth in research productivity has led to the overbreeding of journals, hence resulting in some of them being of poor quality, others being sub-standard, and some more of predatory nature. Nevertheless, if on one hand, the pressure to publish has led to exponential growth in research productivity, so has increased research activities led to an exponential growth of journals (mostly sub-standard and of predatory nature), hence fulfilling the law of cause and effect relationship. This is why and where the principle of sustainable growth and development needs to be followed to have equitable and balanced growth in any given area and research should be no exception to it. There is always a need to allocate the necessary space to future generations to let them groom as per the conditioning warranted. Nonetheless, it is the obligation of present generations to prepare their future generations for self-sustenance rather crippling their creativity by overfeeding them by providing over and above to their actual requirement.

### **Discussion**

The Web of Science (WoS) and Scopus are the two leading commercial and popular journal indexes in the world. Researchers across the world quite often



refer to these indexes to assess the genuineness of a research journal or while looking for some authentic and reliable journals to publish their research results. Consulting these indexes has become even more important for researchers these days, as the market of journal publishing is flooded with predatory, sub-standard, and low-quality journals. Given this fact, the governing bodies across the world do take necessary measures at their respective levels to ensure that the academia and scientific community of their country may not become prey to such slothful publishing. Accordingly, with the view to improve the quality of research in India, the UGC came up with the UGC-CARE (Consortium for Academic and Research Ethics) list of journals by compiling a list of quality journals published all across the world and this list includes almost all the research journals indexed in WoS and Scopus (UGC, 2019). Compiling its own list of journals also means that research articles published in all such CARE list journals shall be treated cum rated equally by the UGC for every purpose including, academic, research, recruitment, career advancement, etc. But unfortunately, UGC somewhere has demeaned the state of the UGC-CARE list while framing 2018 regulations about the direct recruitment and career advancement of faculty members.

In 2018 UGC came up with its regulations about minimum qualifications for the appointment of teachers in universities and colleges and promotion to faculty members under the Career Advancement Scheme (CAS) (UGC, 2018b). Under Table 2, pertaining to ‘Methodology for University and College Teachers for calculating Academic/Research Score reads the research score for research papers would be augmented as follows:

- i) Papers in Refereed journals without Impact Factor – 5 points
- ii) Papers with Impact Factor less than 1 – 10 points
- iii) Papers with Impact Factor between 1 and 2 – 15 points
- iv) Papers with Impact Factor between 2 and 5 – 20 points
- v) Papers with Impact Factor between 5 and 10 – 25 points

- vi) Papers with Impact Factor > 20 – 30 points

Augmenting the research score for research articles in the above fashion completely speaks about the prejudice of the UGC, whereby research articles published in the research journals indexed in WoS have been put at an advantage. While the research articles published in research journals indexed in Scopus, which otherwise also follows its own metric assessment to rate some of its indexed journals better over others and the research articles thereof published in all such journals. Similarly, there are other journals as well which too reflect one or the other sort of metrics on the cover to make their statements of being qualitative over other journals. More importantly, the UGC seems to have forgotten its own CARE list of journals which it compiled specifically for the purpose. The bigger question remains, can UGC ignore its own CARE list of journals over WoS indexed journals, by showing the former indexed list in a poor light and the lateral in a better light, thereby promoting the agency having commercial interests?

The people and the professionals at the helm of affairs in UGC have to understand some basic things about such metrics in general and Impact Factor in particular. The research journals not indexed in WoS do not have any impact factor, thereby putting those research journals at an advantage that are indexed in WoS is undesirable and uncalled for, which UGC should do away with at the earliest possible. By putting such a kind of regulation in place, UGC is somewhere directly encouraging students, scholars, and faculty members to publish research results in research journals indexed in WoS, as same will accrue them more research scores for all purposes including career advancement and direct recruitment of faculty members. Notwithstanding, researchers more or less shall start deeming all non-WoS indexed research journals as ‘B’ grade journals, as such shall be the second or the last preference among the researchers to publish their research results.

Those who have been bestowed with the responsibility to decide on policy matters can’t take such decisions for a ride, presuming that whatever they will say will be the rule of thumb.

Fundamentally, one has to understand that it is not the research journal that is responsible for the quality of research articles; contrary it is the quality of research articles that over the years help a research journal to attain maturity and strikes to prominence

as a quality research journal. By no means should it be given to understand that a journal can even be a reason for quality research, but surely quality research is a reason for the quality journal. In the same way, citation count cannot be owed to a research journal or the IF a research journal may be having. The impact factor of a research journal is because of the citations attracted by the research articles published in it. It would be quite unfair to presume that a research journal can be a reason for citing a particular research article. One should not have even an iota of doubt in the fact that a research article is always a reason for the citation of a research journal and the Impact Factor thereof it attains.

Every research activity is undertaken with an objective approach and the research results so produced are always deemed authentic and reliable. Still more, the research results produced are always verifiable under both natural and laboratory settings and so are research results subject to test and reproducibility. The people at the helm of affairs in UGC need to understand that the research methodology followed by a researcher to undertake a research activity in itself stands as testimony that the research results so produced are qualitative and the research activity undertaken is on the scientific lines. On the contrary, UGC has resorted to unscientific lines to measure the quality of research articles by using citations count as a yardstick. It is a very well-known fact that there is no objective method to cite other research work in one's research work other than quoting a few related works from the millions of articles published in that particular subject field. Still more, citing others' works is more or less accidental, whereby a researcher may stumble against a particular article and may cite the same. Also, there is no limit to the number of references a researcher may cite in his work. In natural sciences, the subjects like chemistry, etc., are known for having a higher citation percentage than citations in Social Sciences and Humanities. Given this fact, some research journals have a higher Impact Factor than others, and still others despite publishing quality research articles have no impact factor.

It may not be out of context to mention that the practice of self-citations is prevalent almost at levels of research publishing, undertaken with the sole purpose to inflate the Impact Factor of research journals, h-index of authors, cite-factor, etc., (Wilhite et al., 2019). Publishers press for journal self-citations to inflate the Impact Factor and Cite Score of research

journals, Authors self-cite to improve their h-index, institutions self-cite to exhibit the quality of their research through citations count, and more. It is also being observed that researchers known to each other and those working in groups as co-authors, especially in sciences are actively involved with the practice of both self-citations and citing each other's work with the sole purpose to help each other inflate the author h-index (Breschi & Lissoni, 2004). Even one may come across the practice whereby researchers cite more than the desired number of references in their work, again with the sole purpose of inflating the h-index of authors and Impact Factor of research journals. It is a common practice that reviewers often suggest to the researcher that some popular and related works have been ignored hence the need to cite such work. This practice of reviewer suggestion to cite some specific works is mostly aimed to help inflate both the Impact Factor of research journals and the h-index of authors.

It is an open secret that citation metrics are monopolized at all levels, thereon giving weightage to research articles published in research journals indexed by a particular agency that has commercial interests reflects biasness on the part of UGC, the highest governing body of higher education in India and the lack of knowledge about the concept Impact Factor among the people at the helm that the term is a proprietary of a private agency which has commercial interests warrants for reforms.

## **Conclusion**

There is no denial in the fact that research journals indexed in Web of Science and Scopus are far more qualitative than research journals not indexed in any of the two indexes. The quality of all such research journals hasn't come overnight but by maintaining higher standards in reviewing the research articles submitted to these journals for publication and the overall publication quality maintained by these journals over the years after they came into being. The idea of having a UGC-CARE list of journals was both to groom the budding researchers who often find it difficult to publish their research results in quality journals like those indexed in WoS and Scopus and help the newly launched journals to establish themselves as quality research journals. The UGC as a governing body of higher education in India and being a government body cannot openly promote the products of a private agency that has a commercial

interest. And for that matter, Clarivate Analytics is the agency that is selling its metric product WoS to academic and scientific institutions all across the world at exorbitant rates. Nonetheless, Impact Factor is a marketing term floated by the agency to lure the global research and scientific community to publish their research results in all such journals indexed in WoS in general and those having Impact Factor in particular. In the first place UGC should do away with the practice of giving more weightage to research articles published in research journals having Impact Factor and so should it revisit its 2018 regulations and modify the same accordingly. There is a need to understand that the IF of research journals is because of the quality of research articles published in them and not vice-versa. Still more, if IF is to be recognized, then other metric scores need to be weighed equally. The stratification of quality parameters or metrics is good as long as research output has practical implications and serves the immediate purpose of the end users, but the moment the purpose of all such metrics gets reduced to promoting the commercial interests of a particular agency needs to be shunned at once without any delay. The UGC has to give due recognition to all research journals indexed in its CARE List by treating them at par without any disparity.

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# Online Oral Examinations: An Initiative by the Indian Institute of Teacher Education

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The COVID-19 pandemic has affected the global economy, culture, politics, lifestyle, health, environment, and above all education. The student population in countries like India where the student population comprises nearly one-third of the population has adversely affected the teaching-learning process, especially assessment, and certification. Each coin has two sides; likewise, this global pandemic has also positive and negative impacts. The covid-19 pandemic and reactions to it positively affected the environment because of reduced human activity. In the same way, many positive effects can be observed in the field of education. Now, people have accepted 'The New Normal'.

When the COVID-19 pandemic struck India in 2020, the entire education system swiftly switched from on-campus classes to online classes. Students began to learn on the internet, radio, and television via mobile and laptop devices from big cities to tiny villages. Developing teaching-learning tools and keeping their class lively and engaging have become difficult jobs for teachers in the digital context. In addition, the online evaluation and assessment process has become more difficult. When students have the option of taking tests from home, they can readily copy answers. Students and the teacher could not even practice or learn how to create questions for an open-book exam. The use of an open-book test requires additional training that was not initially given as part of the procedure.

In January 2022, because of the third wave of covid-19 with the threat of Omicron and Delta variants, once again schools and universities had to revert to online mode. Most of the universities of Gujarat have postponed the semester-end examination. The main adverse effect of this decision will be reflected in the stretch of the upcoming semester and if the next semester begins late, it will lead to late completion. In that situation, so many students will miss the opportunity to get placement in various schools.

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So, the Indian Institute of Teacher Education (IITE) decided not to postpone the exams.

During the third wave of COVID-19 online exam was the only solution to keep students safe by providing them the opportunity to give exams from home. To make this online examination valid and reliable the Vice-Chancellor of IITE discussed this situation with stakeholders and the Academic council thereafter with the approval of the Academic council, IITE decided to conduct an online oral examination.

## What is Online Viva-voce Examination?

Online oral examination refers to the Assessment and evaluation of the students' oral performance in the online mode. Each student and two evaluators had to join the Google meet for the online oral exam with the link provided to them by the university. The entire online viva-voce exam was recorded by the proficient IT team. IITE purchased Google's teaching-learning upgrade version with 120 login ids. This license version allows conducting and recording 120 Google meetings at a time.

## Validity of online Viva-voce Examination

The validity of online oral examination refers to examining students regarding the content they are taught. Evaluation of the students should be done based on the syllabus only. To make this online viva-voce examination a valid examination, Indian Institution of Teacher Education had taken enough care. Each unit of course was divided into ten points to be asked. So, if the course has four units, then ten points from each unit were prepared and the same was shared with the students and evaluators. Each unit was given 14 marks weightage; there were a total of four units in each paper. So,  $14 \times 4 = 56$  marks were assigned to four different units and the remaining 14 marks were decided to give based on the performance of the students. This made a good representation of course content. They informed evaluators to ask questions according to the points provided to them only.

## Reliability of Online Oral Examination

To make these examination reliable and transparent, certain steps were taken. To increase the

reliability of the examination number of questions to be asked was fixed. From each unit, the evaluator had to ask a minimum of three questions. If students cannot give answers to these three questions, the evaluator can ask more questions up to six. Further, in an online oral examination, an evaluator could ask follow-up questions and could check the depth of the student's knowledge. Further, the evaluators were informed to allow the students to select the unit to answer first to create a student-friendly environment.

As compared to other modes of online examination, in online oral examination students could not copy the answers. And if the evaluator has doubt, that student is reading from another screen or any person is helping him/her to answer in that case, the evaluator can ask follow-up questions and application-based questions to assess the depth of the student.

To increase the reliability of the evaluation process, a panel of two evaluators evaluate the performance of the student. The selection of evaluators was done randomly. Even the students' batches were prepared randomly using ERP (University Data Management system). Further in the list of the students, only the enrolment number was mentioned, so the identity of the student was not declared. Evaluators to each batch are assigned randomly to make the evaluation process reliable and, for each paper, they assign a new evaluator panel to that group.

Every meeting is being recorded by the support IT team so that if after the announcement of the result, any student wants to go for reassessment, then the recording can be used and sent for reassessment. Thus, the entire process is made fully transparent and open.

### **Procedure of Online Oral Examination**

IITE has a total of 59 affiliating institutions offering two-year B.Ed. programme in which more than 5245 students are enrolled. Center of Education, IITE offers various integrated programmes like B.A.-B. ED., B.Sc.-B.Ed., M.A./M.Sc.-M.Ed., B.Ed.-M.Ed., M.Ed., and M.A. Education. More than 750 students are enrolled in these programmes. Further, the total number of papers taught in these programmes is more than 180. Successful completion of the Online Oral examination on such a large scale was a big challenge and IITE made it possible with macro and micro-level planning.

Under the guidance of the Vice Chancellor the entire team prepared the plan to make this initiative successful. Guidelines for the students and examiners were prepared and posted on the website for easy access. Each unit of each course is divided into ten points to be asked. So, if the course has four units then ten points from each unit are prepared and the same is shared with the students and Evaluators. This will help in making the process of examination valid. Each unit was given 14 marks weightage; there were total four units in each paper. So  $14 \times 4 = 56$  marks are assigned to four different units and the remaining 14 marks were decided to give based on the performance of the students. For conducting online oral examinations, Google Meeting platform was selected as the IITE has purchased the license of G-suite. It allows 120 users to create and record online video meetings. Each student allotted a 30-minute time slot for each paper of 70 Marks and 15 minutes for each paper of 35 marks.

There were two evaluators in each batch. IITE has its university management system named ERP system. With the help of this ERP system batches of students were created randomly according to the enrolment number. Total of 12 students were grouped in each batch. Students' batch list was published on the website. IT department of the university created 120 specific email ids to organize Google meetings with recording. Examination Schedule is prepared in such a way that every day maximum 120 batches of students can appear for the examination. A team of 12 technical assistants was prepared. Each member has to manage maximum 10 Google meetings each day. On the previous day of the examination meeting links were created and published on the website with students' batch list. Before one hour of the examination, i.e. at 8.00 am all the technical team members have to start the ten different meetings assigned to them. They first admit the evaluators and make them co-host and start the video recording. They help and support if any evaluator or student has any difficulty in joining the meeting.

Once the examination started at 9 am then the evaluators can admit the students one by one according to the time slot allotted to them. All the meetings are recorded so that after the declaration of the result if any student is not satisfied with the result he/she can apply for reassessment. At the end of the examination, each evaluator submitted the mark sheet to the exam department through email.

## Challenges

Online Oral Examination is an Innovative idea that was not implemented on such a large scale. Therefore, the entire team must create a new model, which needs accurate planning and readiness to face challenges. Every day minimum of 75 and a maximum of 120 batches were conducted an online oral examination and for that identification of two evaluators per batch, according to the course was difficult. For example, if in 90 batches exams are going to be conducted then 180 evaluators were needed.

Preparation of the exam schedule in such a way that in a minimum number of days exam can be completed was also a big challenge. Preparing an exam schedule for various integrated programs with over 180 papers is complicated. Again, the everyday

compilation of 240 mark sheets with limited staff was challenging. Conducting Online Oral exams for the subjects like Mathematics, Physics, etc. was quite challenging. Meticulous planning and proper logical structure are required. A comparison of offline and online examinations is given in Table-1.

## Benefits of Online Oral Examination

The idea of online oral examination was like a boon in the pandemic situation. Almost all the learning outcomes related to knowledge, understanding, application, and skill can be assessed through online oral examination too. Questions based on higher order thinking skills can be asked as well as can be assessed. The evaluator can ask scenario-based and open-ended questions to assess the in-depth knowledge of the student.

**Table -1 Comparison of Different Modes of Examinations**

Characteristic	Offline Exam			Online Exam		
	MCQ based Exam	Written Descriptive type Exam	Oral Exam	MCQ based Exam	Written/ Open Book Exam	Oral Exam
Suitable for a situation like COVID-19 pandemic	x	x	x	√	√	√
Economically viable	x	x	x	√	√	√
Commutation & Time-Saving	x	x	x	√	√	√
Human resources	x	x	x	√	√	√
Access of Evaluator	x	x	x	√	√	√
Written expression of the student can be assessed	x	√	√ (Such Que. can be asked)	x	√	√ (Such Que. can be asked)
Performance-based assessment can be done	x	x	√	x	x	√
Oral Expression can be assessed	x	x	√	x	x	√
Questions can be asked as per the situation	x	x	√	x	x	√
Follow-up questions can be asked	x	x	√	x	x	√
The duplicity of answers can be avoided	x	x	√	x	x	√
Examiner can ask a variety of questions	x	x	√	x	x	√
Examiner can ask more clarification if required	x	x	√	x	x	√
The examiner can motivate the student to give answers	x	x	√	x	x	√
An in-depth assessment of the student is possible	x	x	√	x	x	√

The online oral examination helps to understand the students' interpersonal competencies and therefore can be judged appropriately. Confidence, Self-awareness, professionalism, presentation skills, etc. can be assessed in students.

Evaluators can ask follow-up questions to elaborate on any answer and can ask a series of questions until the evaluator reached the limit of what the student knows which is not possible in the written examination. Unlike written examination especially in the oral examination, students ask for clarity if the question becomes unclear or ambiguous. The oral examination provides an opportunity to ensure that each student understands the questions being asked.

Online Oral examinations promote student learning. When students have to present the responses orally, they tend to prepare thoroughly because they cannot predict which kind of questions will be asked. Furthermore, to answer orally they need to develop an understanding of the content. Rubrics can be developed for accurate evaluation. Oral examination contributes to developing students' verbal communication skills. It provides equal opportunity to *Divyang* students also. Some students may give better responses in the oral examination as compared to the written examination, particularly students having dyslexia or impaired vision. In online oral examinations students cannot copy answers as well as mass copy is also not possible.

### **Points to be kept in mind while conducting Online Oral Examination**

The online oral examination has many advantages as compared to written exams, open-book exams, or MCQ-based online exams. The following points should be taken care of to make this process valid and reliable.

- Students should be provided detailed guidelines in written format regarding the exam pattern, and if they have any doubts they should be cleared.
- Evaluators should be provided with guidelines for examinations including the rubrics.
- Mock examination practice should be provided in class.
- While conducting the online viva-voce examination the evaluator should take care of the students who have performance anxiety, speech disorders, or hearing problem. The evaluator should encourage

such students to give proper responses. In the beginning, easy questions should be asked and gradually increase the difficulty value of the questions.

- All students should be given equal opportunity for displaying their knowledge.
- Oral Examination should be structured and planned. Pre-determined questions with follow-up questions in form of content points should be shared in advance with students and evaluators.

### **Conclusion**

Students' evaluation is an important and integral part of the Education system. In this pandemic situation, IITE has made all the efforts to make this online viva-voce examination process transparent, valid, and reliable. Further, the entire examination system was *Atmanirbhar*. IITE has not hired any external agency to conduct this examination. The entire process was completely *Atmanirbhar*. Looking into the advantages of this exam pattern as compared to all other patterns, this is going to be used even after the world comes out of the pandemic.

Online viva-voce examination cannot replace the age-old assessment process but it is the best complementary method of assessment for evaluation.

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# Retrospect and Prospects of Evaluation Reforms for Transforming Indian Higher Education

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All countries of the world now heavily rely on the quality and soundness of their education system. Today, in the postmodern world a viable education system determines national progress in all spheres of human development. Therefore, it is imperative for all countries to reform higher education for sustaining national progress. In the effort to bring quality education, a robust evaluation system is a key factor. Especially in the Indian context the task becomes stupendous due to the large size of its higher education system.

The higher education system in India is one of the largest systems in the world and it has grown significantly since its independence. The number of universities in the nation expanded from 32 in 1950–1951 to 1057 (as per the data provided by UGC on 23.08.2022), which represents an increase of more than 33 times. In a similar fashion, there are now 42,343 colleges instead of 695. (UGC, 2003; Agarwal, 2007; AISHE, 2022). The “Right to Education Act” and other national laws and policies that mandate free and compulsory education for all children between the ages of 6 and 14 have led to an increase in secondary enrolment during the past ten years. In other words, students who successfully complete secondary education are the major reason for the increasing demand for enrolment in higher education. Because of this, higher education institutions have expanded nationwide at a never-before-seen rate (Shaguri, 2013). The number of students enrolled in higher education has expanded dramatically during the past ten years, rising from 29.8 lakhs in 1980–1981 to 373.9 lakh in 2018–2019 also the private sector manages more than 70% of HEIs in India and serves more than 70% of the country’s enrolled students (AISHE 2019). Additionally, it wants to raise its gross enrolment ratio from the current 26.3 percent to 50 percent by 2035 (NEP, 2020).

The Indian government has prioritized higher education expansion and equity since gaining independence. The higher education system in India still faces severe qualitative issues despite the enormous and remarkable improvement in the last ten years (Singai, Kumaraswamy & Chandra, 2020). But it is a fact that there is a constant change due to the various advancements in science and technology and this caused the higher education system in India to go through a transformational phase. Therefore, the country’s higher education system has the challenge of developing a skilled resource from its youthful population and releasing its potential to take up the mantle of change and growth. The government, on the other hand, has a crucial role to play in helping to give the push needed to create an appropriate and high-quality education system. For this reason, to implement academic changes in India’s higher education institutions, the University Grants Commission (UGC) has launched a number of programmes. Curriculum creation and its revision on a regular basis based on “Learning Outcomes” is one of the quality undertakings made by the UGC and the next milestone to be achieved is related to examination reforms. Even though there are various initiatives and programmes for curriculum construction and updating, and the development of learning resources, the revision and reformation of the evaluation system are always being taken for granted. It is seen in all levels of education that the assessment and evaluation procedure remain the same even though there is a sophisticated curriculum. This means to say that most teachers focus on measuring memory ignoring the skills and competency aspects of the learner and learning. In the educational system, assessment and evaluation are crucial. The current system of evaluating students has drawbacks that make the need for modifications in the evaluation system relevant. However, evaluation should be primarily related to the instructional strategies and learning techniques used, and it should be flexible.

## Issues Related to the Current Evaluation System

It is seen that higher education in India has always focused heavily on examinations. The present exam format used in university structures tests memory learning. Most often, the examination system is affiliated, with external final exams that

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are administered by universities at the conclusion of each semester or year; these examinations are only taken for the purpose of assessment. Mostly, this system shields children from the joy of studying, the thrill of discovery, and the pursuit of knowledge.

The annual examination, coupled with scores, percentages, and division, causes insensitive packing up of innocuous details. As a result, continuous assessment throughout the teaching-learning process receives relatively little attention, and the emphasis is instead placed only on the final examinations, directing all teaching and teaching pedagogy toward preparing students to work hard for better grades. Before being hired for jobs in the public or private sectors, university-certified degree holders with UG, PG, or Ph.D. degrees are frequently required to take another written examination. This is because graduates from the higher education system do not have the knowledge and skills that were expected of them.

The term-end examination is often based on a question paper that only evaluates memory recall ability. The format of a question paper speaks volumes about the institutions and its participants' academic standing. As a result, the reliance on using a question paper to answer the term-end test highlights the shortcomings of the solitary nature of the assessment (the majority of marks are dependent on performance at the term-end examination). There may be concerns about a compromise in the quality of the question papers set due to the examination department of a university's ongoing requirement for question papers. Overemphasis on cramming or memorising has emerged from the increasingly common habit of presenting questions that just need the recollection of material rather than higher mental level activities. As a result, the development of higher mental ability is consequently noticeably delayed.

In order to improve learning outcomes, it is important to recognise and solve the multiple obstacles the assessment system encounters. The difficulties can have to do with evaluating pupils, teachers, educational boards, technology, social problems, and moral dilemmas. The assessment system's challenges must each be thoroughly examined. While addressing the difficulties, opportunities for online assessment are also taken into account (Anu, 2022).

### **Going beyond Continuous and Comprehensive Evaluation (CCE)**

The CCE programme was created to give

teachers regular, thorough feedback on their kids' performance as well as that of their parents and other stakeholders. The main goal is to give teachers the flexibility to adapt their instruction to the existing learning capacities of specific students. In order to do this, CCE's form of assessment is intended to be "continuous," in that teachers track students' learning progress across time using brief bursts of content (such as a single module or lesson). Unit examinations, projects, and evaluations of student involvement in class can all be included in this regular assessment. Additionally, compared to traditional testing, CCE recommends a more "comprehensive" assessment of student achievement: it assigns grades based not only on academic performance but also on co-curricular activities (like the arts, music, or sports) and personality development as demonstrated by life skills, attitudes, and values. It is intended that teachers be able to closely monitor student progress, better adapt their instruction to the requirements of their students, and more easily identify and address any learning gaps through the frequent evaluation of CCE. CCE is intended to lessen the stress of studying for big exams because the evaluations are ongoing and low-stakes, which can promote student retention.

Regardless of whether or not students understand the material, teachers move forward with an overly demanding curriculum. Due to teachers' attention to the highest-performing pupils and their progress through the curriculum, children who start with a minor gap quickly fall behind (Banerjee and Dufflo 2011). Getting teachers to pay closer attention to what students in their classrooms know and what they can understand is a key component of the education systems that need to be changed. When this is done, there are significant learning gains (Banerjee et al. 2017). The continuous assessment method used by CCE is based on earlier studies in education that emphasized the value of formative assessments—those that offer frequent feedback to teachers' classroom practices, as well as to parents and students—in fostering student learning (Black and William, 2009). Programs for continuous assessment have been marketed as a way to enhance education in underdeveloped nations (UNESCO 2008), although there is little proof of their efficacy.

### **National Education Policy—2020 and its Vision of Assessment and Evaluation for Higher Education**

Radhakrishnan Commission (1948-1949)- "If there is one thing to be reformed in education, it is the

examination system”. In India, examinations play a focal and decisive role in the career choice of students; the ability to pursue the right higher qualifications, and determines the degree of knowledge possessed. Both the skill requirements and the decision-making capacities of human resources have undergone a radical transformation as a result of the forces of global competition and the wave of industrial disruptions, placing enormous pressure on them to function in challenging circumstances. The final examination follows the same structure and serves as a benchmark or fate determiner for millions of students, making any changes recommended unlikely to make much of an effect. The final exams of the term are frequently two/three hours each and the only means by which students’ future careers are decided. The current exam system evaluates memory learning abilities. In order to meet professional demands, students must not only possess knowledge but also be able to apply it uniquely to each circumstance, no matter how simple or complex it may be. Students must feel pressure to perform to the best of their abilities as a result. Although memory learning may be necessary, it is insufficient to function in the demanding environment that is now in place. Application skills, or higher-level abilities like analysis, invention, and evaluation, must be evaluated. Standardization of assessment has drawbacks because each student has a unique combination of intellect and ability, making it impossible to detect students’ true potential and abilities with a single measurement method. This all necessitated NEP–2020 to search for new ways and methods for evaluation. NEP–2020 emphasises on transforming assessment for optimizing learning and development of all students with a focus on the following:

- Regular, formative and competency-based
- Promoting learning and development of students
- Focuses on ‘assessment for learning
- Tests higher-order skills (analysis, critical thinking and conceptual clarity etc.)
- Helps the entire schooling system in revising continuously teaching-learning processes to optimize learning

NEP-2020 focuses on – regular, formative, and competency-based assessment, promoting the learning and development of students and testing higher-order skills (analysis, critical thinking, and conceptual clarity, etc.). The goal of NEP-2020 is to transform the culture of assessment. NEP–2020

envisage transforming the culture of assessment through making continuous tracking of the learning outcome of the students, making board examination more flexible with an assessment of essential skills. As per the vision of NEP–2020, all HEIs shall move to a criterion-based grading system that assesses student achievement based on the learning goals for each programme, and also move away from high-stakes examinations towards more comprehensive evaluations which highlight the skills and abilities of the learner. It also demands for focus on regular formative assessment for learning rather than the summative assessment that encourages today’s ‘coaching culture’. Summative evaluations will give way to regular, formative evaluations, which are more competency-based, encourage learning and development, and test higher-order abilities like analysis, critical thinking, and conceptual clarity. Exams, at all level, will be changed to promote holistic growth and to measure key competencies, which will make them “easier.”

### **Recent Interventions and Suggestions for the Reformation of Assessment in HE**

According to Girlando (2013), it is essential for students to master the academic material/ subjects covered in class since having a theoretical understanding of the material will allow them to apply it to real-world situations. However, the current state of affairs is that students struggle to understand the fundamental academic concepts taught in the classroom and are unable to apply the knowledge in real-world situations. And also, how can we be certain that the students are actually learning? According to education experts of the 20<sup>th</sup> century, the answer is determined by the grades or marks the student receives on summative assessments. However, in the twenty-first century, the typical response to the same question would be something different, such as how far pupils were able to apply the knowledge they had learned to actual situations. It indicates a change from learning new information to using it. In this scenario, the teachers do have the significant responsibility of preparing content and methods to evaluate the students in terms of their skills and application level. This necessitates the need of acquiring 21<sup>st</sup>-century skills for teachers and there needs to have a framework to assess the 21st century. Douglas Reeves (2010) identified five core elements for the assessment of 21<sup>st</sup>-century skills: (1) Learn, (2) Understand (3) Create, (4) Explore, (5) Share. The specialty of this framework is that it is adaptable to every academic level and subject.

1. **Learning-** what do you know? what are you able to do? Assessment of 21<sup>st</sup>-century learners requires subject/content knowledge. Learning is only the first step and if we stop with this step, we end up in the reproduction of someone else's idea.
2. **Understanding-** what is the proof that you can apply learning in one area to another? Learners' understanding is their ability to explain their learning to others.
3. **Exploration-** what did you learn beyond the limits of the lesson? Learners gain the most when they explore.
4. **Creativity-** what new ideas/knowledge you can contribute?
5. **Sharing-** how did you apply the knowledge to help and guide a person in your locale/globe?

Each of these elements is essential while developing an assessment tool to assess the learner in higher education. Any tool or test developed for assessing achievement, perception and the like must place value on learning the content knowledge as well as the application level of the gained knowledge.

Students experience tension and anxiety during examinations in their current form, both before and after the test. Issues with malpractice that affect their credibility are related to this. Reforms thus are much needed to ensure credibility and the outcome of the assessment system. 'There is a need to have more horizontal assessment modes rather than one single vertical mode that decides the fate of students. Reforms in an examination for all forms of education i.e. formal face-to-face mode, Open, and distance learning mode, etc., should thus aim at the overall development of students in terms of their critical thinking, problem-solving ability, right application of knowledge, and maintain ethics. The NEP 2020 has taken the right step towards the transformation of higher education through innovative evaluation trends. There is a need to chalk out a firm strategy to follow and create an element of desire among all educational stakeholders so that quality higher education may emerge with a quality evaluation system in the country. An action plan towards this direction will greatly help in realising the vision of '*Atma Nirbhar Bharat*'

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# Is Accreditation Enhancing the Quality in Indian Higher Education? Time to Introspect...

Shivakumar U Ganachari\*

*“We are what we repeatedly do. Excellence, then, is not an act, but a habit.”*

The quest for learning makes individuals remain a student in life. It encourages one to find new destinations and learning routes in each endeavour. Every human instinct has the power to walk on the untrodden path. Education is a guiding force to understand one's potentiality, and innate ability, and explore knowledge in the passionate arena. Since the dawn of civilization, India has been the instrumental force in understanding the human quest, knowledge, ability, invention, and discovery in every route of knowledge. Education was internationalized during classical India. A large number of intellectuals from different corners of the world used to frequently visit Indian universities and interact with scholars in India. The quality was upfront and remains uncompromised as a result, the 21st-century Indian classical journey of the education system is being quoted and referred to now and then. Colonialism, Postcolonialism, and globalization have changed defined through the West model of education. To sustain, and stand to remain relevant in the global platforms' certifications, accreditations, branding, and marketing strategies have taken a new direction in higher education. The mindset of internalization of higher education, and ranking of higher educational institutions and universities to attract students have created a culture of projections, superstructure mindset is started defining the meaning of core values of higher education. The perception of the superstructure is trying to build the higher education teaching-learning process in a utopian thought process, and by glorifying accreditation grading, NIRF ranking, and other accreditation agencies at both national and international levels. The showcase of curriculum, teaching-learning, research, infrastructure learning resources, student support and progression, Governance, leadership

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and Management, and Institutional Values and Best practices are explored and decorated more on the papers than the outcome-based learning.

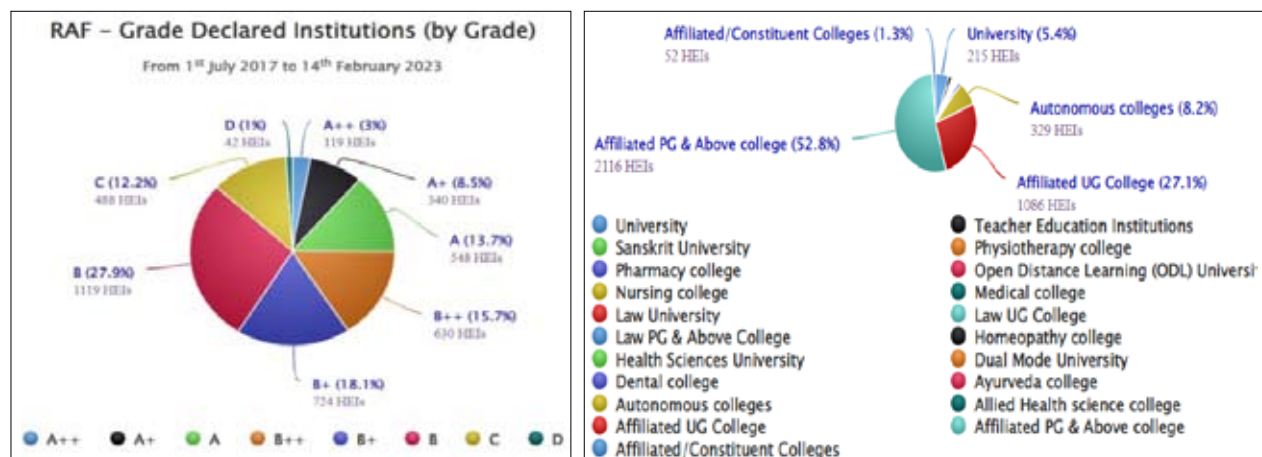
The purpose of education in NEP 2020 as empowering learners to strive towards their well-being, as well as that of the society, nation, humanity, and the planetary ecosystem. Such well-being has multiple dimensions: physical, pragmatic, societal, emotional, intellectual, ethical, aesthetic, and spiritual. Given this conception of the purpose, we need to think carefully about the means that NAAC can employ to guide our HEIs to help their departments and programs raise their quality higher than they currently are, as an ongoing pursuit (Re-Imagining Assessment and Accreditation in Higher Education In India, NAAC Whitepaper Draft 45 – July 13, 2022). This has been glaring like a star during the accreditation process without understanding the ground reality in education. Indeed, there are a lot of mismatches between what appears in Indian higher education, and what the panorama is. The policymakers and authorities are failing to notice the truth of higher educational institutions in India. Unfortunately, the majority of Indian universities and educational institutions are unable to highlight and map the graduate attributes, course, program outcomes, and program-specific outcomes in the learning process, outcome-based Assessment and Accreditation (binary) for HEIs, and assessment-based Grading for their Programs.

To improve the quality of Indian higher education and its expected outcomes, this paper offers a novel strategy to transform the system, from the current summative assessment to a summative and formative assessment based on multiple sources of evidence, focusing on teaching and research outcomes in institutions of higher education. With such a novel robust System of Assessment and Accreditation (SAA), NAAC/ NAC may aim to emerge as a credible international accreditation agency extending its services to other countries. yet, such institutions and universities are shining with good grades. Many times, I am trying

to introspect on the contemporary developments in Indian higher education. At present India has more than 1113 universities, 43796 colleges, and 11296 standalone colleges (AISHE report 2020-21) out of these 3754 colleges, 256 universities have been accredited by NAAC with various grades. (as on 1st July 2017 to 13th Feb 2023 NAAC RAF report) National education policy has the vision to establish three types of educational institutions in India viz Intensive research universities, Intensive teaching learning universities, and degree awarding institutions but the reality is quite opposite to what the policy has a futuristic approach. To achieve this task, it has also prerequisite requirements that the institution should have an A grade by NAAC but, the scenario is against the aspirations of the National Education Policy. The data reveals that More than 857 universities and 40,042 colleges remain untouched or non-accredited colleges. It shows the present scenario and functional style of Indian higher education and its seriousness, and the value of the accreditation process. There is a perception among us that accreditation improves the quality, competency, and image of higher educational institutions in the global platform and provides an opportunity for international collaborations to some extent it can be considered in building the image and representations of educational institutions both national and international level. A handful of educational institutions are doing exceptional performance on the self-driven scale these institutions are above the accreditation parameters and succeeding in meeting the graduate attributes and outcomes based on letter and spirit.

## Reflections of Accreditation on Quality in Indian Higher Education Issues, and Concerns

It is a general perception that quality enhances teaching-learning, research, the academic standard of faculty, and the overall image of the individual and the organization at large. Education creates a learning ecosystem, by building academic structures like curriculum, research role of facilitators, infrastructure learning resources, and so on. It is the base for the prosperity of all in enhancing quality at regular intervals. To explore the distinctiveness of each organization accreditation agencies were established in India. It also tries to project the Indian higher educational institutions with par excellence in international rankings. Unfortunately, the very core objectives of accreditation have been deviated and diluted during the process. The higher educational institutions have utterly failed in understanding the concepts, values, vision, and core philosophy of NAAC. The National Assessment and Accreditation Council (NAAC) was established in the year 1994. Its mandate stated in MoA is to grade “institutions of higher education and their programs”, and “realize their academic objectives,” to raise the quality of higher education (and research) in India. This whitepaper is an attempt to critically evaluate the strategies adopted so far toward this aim and explore potential initiatives to improve its functioning to help the nation become one of the world leaders in higher education (Re-Imagining Assessment And Accreditation in Higher Education in India, NAAC Whitepaper Draft 45 – July 13, 2022).



Sources: [https://assessmentonline.naac.gov.in/public/index.php/hei\\_public\\_dashboard](https://assessmentonline.naac.gov.in/public/index.php/hei_public_dashboard)

The core values of higher education are to uphold the academic integrity and values of education. Education should harness the knowledge and innate ability of the learners by ensuring effective learning academic ambiance. It should focus on enhancing capacity building, developing soft skills, and the required skills of the 21st century. Indeed, the onus of educational institutions is immense, and invaluable in building the career of learners. Sad to say the rise of malfunctioning, and mediocre learning ecosystems is creating an artificial dearth of employability skills. It is not the dearth of employment but the lack of skills among the graduating students that is creating an image of a middling career for students. The quality of graduating students is the reflection academic functioning of the educational institutions. The lack of vision on OBE, and academic planning, is the sheer outcomes of the teaching-learning. A large number of institutions burn their midnight oil during the accreditation process and come with flying colors within a short span of hard work! This reflects the quality process and serious concerns of higher education in India. The accreditation doesn't ask beyond academic practice yet most of the institutions feel it is a burden and challenging one. To get good grading institutions, run behind in manipulations and preparation on the criterion-wise questions.

Thus, quality and accreditation don't complement each. The reaccreditation result of the educational institutions is a testimony. In the new grading process like quantitative and qualitative metrics, majority of the true quality of higher education lies on graduate attributes, outcome-based education, and the distinctiveness of the institutions.

### **Accreditation-- the Game of Quantitative and Qualitative**

The revised accreditation process focuses on both quantitative and qualitative metrics where both numbers and descriptions play their role in ensuring the grade. Often, I believe it is like a game of luck and an extra mile walk ... it is also observed that a few accreditations grading and the function of the educational institutions mismatches and rages doubts on the system.

### **Are the highest Grades Truly a Sign of Quality or a Super Structure?**

Here I am not questioning the integrity of the body or the agencies but trying to address the other face of education in India. It is observed that during the accreditation process, the majority of educational institutions project one side of the face and keep remaining in darkness. The conditions of the traditional colleges in terms of quality, curriculum delivery, planning, teaching-learning process, research institutional values, and best practices are on paper than the culture. It is also noticed that the accreditation process is being prepared through external agencies and copycat of other institutions' Self Study Reports (SSR) during the process. To overcome such practices Accreditation agencies implemented mentor-mentee policies to guide nonaccredited institutions. It is my strong conviction that higher educational institutions should prepare their road map based on the scenario of nativity and requirements. A futuristic and visionary approach towards academics and research besides creating inspiring teaching learning and living environment that provides good quality of life and contribute immensely to the development of our universities in the 21<sup>st</sup> century as the capacity and potential to compete with the best in the world (UGC's IDP focuses more on strategic planning of the institutions). It sets the path to transform the teaching-learning process, curriculum design, and entire academic integrity that is desperately needed in the contemporary world.

### **Can we Brainstorm on These...?**

1. During the accreditation process accrediting institutions should provide substantial piece of evidence (physical) of outcome-based learning and what it claims through its graduating, and graduated students, like contribution, placements, etc the strategic planning and academic planning should map with AQAR/SSR. It is not possible unless we stop manipulating and mesmerizing the agencies.
2. Before the commencement of the academic year institution should keep its strategic planning on the institutional website, and the same should be uploaded in the dashboard of HEI (NAAC Portal) The AQAR and SSR should map and match to strategic planning. If these two will

help in understanding the HEI and the quality of the organization. If possible five years of strategic planning can be a guiding force and helps in enhancing the quality and aspirations of National education policy

Transformation is a gene of education. As the world changes the process of learning has to redefine the needs and aspirations of the stakeholders. True sustenance is not what we do but how relentlessly gives structure to the contemporary world. The philosophy of accreditation is to enhance the quality through various Benchmarks and ensure the reputation and image of the higher educational institutions in the international platform. Unfortunately, stakeholders (Teaching fraternities/managements) are putting them down by practicing the core philosophies in mechanical and lighter sense. The main objectives of accreditation are to explore the distinctiveness of each higher educational institution and the same should be addressed with substantial proof during

the grading process. To get better grading we are trying to project highlight and address through decorated, and beautified contents and facts... for this why waste the bucks which can be utilised for other useful purposes. should stop...? Time to introspect isn't it...?

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## HANDBOOK ON ENGINEERING EDUCATION (2016)

The 12<sup>th</sup> Edition of “**Handbook on Engineering Education**” is primarily meant for students seeking admission to Engineering/Technology/Architecture programmes at the undergraduate and postgraduate levels. It contains State-wise information on 1050 colleges/institutes/ university departments in the country. The information of Institutions in the Handbook includes: Year of establishment of Institute/ Department/ name of its Principal/ Director; probable date of Notification/last date of application; Number of seats available in each Engineering/ Technology branch; seats for NRIs/Foreign students; Eligibility; Application procedure; State-wise Common Entrance Test Rules for B.E/B.Tech/B.Arch courses; Fees; Hostel facilities, etc. Also given is ‘Faculty strength’, commencement of Academic Session, and System of Examination. Brief details of Post-graduate courses are also included.

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# Common University Entrance Test: Some Pertinent Points

Rubia Choudhary\* and Aerum Khan\*\*

The Common University Entrance test, earlier known as the Central Universities Common Entrance test is an all-India test conducted by the National Testing agency for admission to various undergraduate, integrated, postgraduate, diploma, certification courses, and research programs. The name was changed from CUCET to CUET because earlier only Central universities were allowed in this Entrance. Now Central is replaced by Common. It means not only Central but Central, state, private, and deemed universities are now permitted to accept the scorecard of CUET. This year a total of 86 universities are participating under CUET-43 Central universities, 13 State universities, 12 deemed universities, and 18 private universities. This examination is a Computer based test. The medium of the test will be in 13 languages (Telugu, Kannada, Malayalam, Marathi, Gujarat, Odia, Bengali, Assamese, Punjabi, English, Hindi, and Urdu). This examination is divided into three sections: Section IA & IB related to languages, Section II related to 27 domain-specific subjects, and Section III is a general test. The motive of CUET as per the government is to provide a unified platform for all students to get higher education across the nation and ensure that all students especially those from rural areas have access to equal possibilities. To end the inconsistencies in the findings of the 12<sup>th</sup> board was the government's second main reason for introducing CUET. It is estimated that approximately 15 lakhs students from across India will take the CUET examination for admission to UG courses. Only objective-type multiple-choice questions will be asked in the CUET.

Additionally, CUET will also consider the board examination marks, which are irrelevant. To be eligible for the CUET examination students just need to score 50 per cent on their board examination. It is easy for any student to achieve 50 per cent in the 12<sup>th</sup> board examinations. Students will prefer to

concentrate solely on the CUET examination. Entrance examinations are very common these days. We all talk about the continuous evaluation of the students, at the same time we are assessing them on one examination only. Nowadays the government is implementing standard examinations for a job, university admission, scholarship examination, etc. The examinations are considered high stake examinations where a high percentage of a course grade is associated with fewer of the major assessments and that is having fewer feedback points available to the students. If you score well in high stake examinations you are considered good otherwise fail. For any high-stake examinations, Multiple-choice questions are probably chosen for convenience, which only have close-ended questions which will lead to rote learning. MCQ is the least effective way to assess understanding of subjects such as arts, literature, and social science. Here students are not assessed on their ideas, creativity, curiosity, background, challenges, etc. Here, only we are capable of cramming things.

It is said that entrance examinations are more transparent as compared to board examinations. But is CUET fair to students from other state boards and ICSE boards? As CUET is going to be NCERT based. When there is a gap between the entrance and the school syllabus, students will rush to the coaching centre to fill that gap. The coaching centres will collaborate with dummy schools to make it efficient for students to crack the entrance examination. It will increase the dummy culture in society. If the government implements these kinds of common entrance examinations. Our government has set several laws for schools but no such rules are for coaching centres. They are training students according to their choice. Even the qualification of teachers of coaching centres is not checked. Earlier we have seen the culture of dummy school in students preparing for NEET and IIT-JEE but now CUET can increase dummy culture in other students also. If this happens for long in the Indian Education system, our education system will be limited to coaching centres and entrance examinations.

David Coniam and Peter Falvey (2007) in their case study give the information on validity and

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reliability of the assessment of teacher selection tests in Hong Kong. The advantages and disadvantages of criterion-referenced tests are also covered. It has shown how these tests focus on subject content knowledge rather than language ability. In language tests: slot and gap-filling exercises and multiple-choice items are asked which only assess your content knowledge, not language ability. This test has direct communication through speaking like an interview or writing some prose or essay. These kinds of tests are only able to check some “chunk” of knowledge and not the overall development.

Maddolyn Ritt (2016) mainly focuses on how high-stakes testing affects the learning environment in schools. No Child Left Behind (NCLB) in the USA was implemented to determine if students were at educational standards. This standardised high-stake examination was implemented to ensure equity between schools, assess students’ academic needs, school accountability, etc. The goal of NCLB was to reduce the reading and mathematics achievement gap between white and nonwhite and the achievement gap between rich and poor. But, in reality, this has not happened. Ironically high stakes have widened the achievement gap due to educational inequalities based on race, culture, economic status, and teachers’ main concentration on tests. This test badly affects the literature of the languages opted for by the students. This research shows that marginalised groups are at high risk due to high-stake examinations.

Praveen Kuttichira, Tom Thomas (2017) asserts that the Medical education system of India is one world’s largest. There was huge corruption in Medical college admission which led to a discussion in International journals. It noticed corruption and capitation of fee structure blocked the admission of deserving students. A nationwide Entrance test “AIPMT” for government medical colleges was cancelled once and a retest was conducted on the order of the Supreme Court of India due to widespread corruption. The existence of nexus of private colleges, real estate lobbies, local politicians, and doctors was alleged. NEET was proposed in 2012 but cancelled by the Supreme Court in 2013. It was restored on April 11, 2016. Admission to every medical college was made mandatory via NEET. Regulation of admission based strictly on merit through NEET would stop this practice and start cleansing the system. It seems NEET is promising but also is not enough to cleanse the corruption and capitation of fee structure in medical

colleges. The government needs to take more steps rather than just implementing a test.

Deepak Sanghi (2017) opines that the News of the success of NEET is encouraging the government to make a similar common entrance for engineering. The question arises, Is NEET successful? NEET is still facing challenges in making questions in different languages. NEET discriminates against students from different boards. Does a common examination help students? Most of the directors and professors support the examination, higher the stress and they vote for the common examination. There, the argument will be that one examination puts all the eggs in one basket and hence causes stress. We must have multiple evaluations with small stakes. No student is happy with his/her performance in one examination, due to silly mistakes. In the hope to recover from that silly mistake, there is a huge number of students who drop a year because they think they could have done better. This is a huge waste of resources for a country. If a student gets multiple options and alternate good education, many of them would not drop a year. Stress happens not because of the examination but the stakes associated with it. Reduce the stake and you will reduce the stress. One examination only judges your preparedness in one dimension. It is just like asking a fish to climb a tree. If a university wants to acknowledge different achievements of the student, including sports, and gives them bonus marks. Should that not be allowed? A single test is taking away autonomy that the university must enjoy. If we do the same thing with the engineering examination, as done in NEET, different state board students should be forced to go coaching that they have not learned at school. Suicide in Kota also happens due to high stakes and high pressure from parents. For single examinations, students have to brace themselves. So, a single person increases stress by increasing the stake. The same thing is now done with university and college admission under CUET.

Farida Abdulla Khan (2022) argue that the implementation of CUET by UGC for UG/PG examinations is disappointing though it is not surprising to the Indian Education system. They are introducing a common examination for every job and college admission in India. Education comes under the concurrent list which means it is the responsibility of the state and centre government to provide public education. Some schemes like Sarva Shiksha Abhiyan (SSA), National Curriculum Framework

(NCF-2005), and the Right to Education Act 2009 were implemented to provide a guarantee of quality education to marginalised and poor students. Our new Education Policy 2020 reduces such funding schemes for tribal communities and scheduled castes. Even though we all have seen people with fewer resources and marginalised, who have faced consequences in online learning. Education these days is becoming more towards privileged people in society. CUET is one more step in that direction. The government projected CUET as a “Bias-free” test that gives students equal opportunities based on culture, society, and board examinations. How can this examination be bias-free if they are setting the examination from NCERT books?

This examination will question the 12 years of schooling of a child, on the other side, we are talking about continuous evaluation. This examination fits the meritocracy hypothesis. In India schooling is for students from high society who have material resources, high stake testing is encouraging discrimination and exclusion of children from schools that belong to disadvantaged backgrounds. This examination is Multiple Choice Question (MCQ) based, which will lead to rote learning, students will imbibe vast amounts of knowledge to clear the examination. It will discourage curiosity, spontaneity, and creativity among students. High stakes are always negative for teachers and students with limited resources and infrastructure. CUET may lead to a transparent selection process in college but what about equity and social justice? High stake testing will break down the education system. Those students with different syllabi and who have enough schooling systems to crack the CUET examination will desperately run to coaching centres. High stake examinations are positive only for students with enough resources but badly impact the poor and marginalised students.

### **Discussion and Observations**

We all face different kinds of tests in our life like medical tests (pathological), class tests, entrance tests, driving tests, etc. What is a test? The test is something that helps us gain information about an individual’s ability, performance, knowledge, and achievement. Testing plays an important role in today’s education system; they determine the progress of students’ learning, meets educational objectives, etc. In this article, we are discussing the newly introduced CUET and the challenges students are facing. CUET is also a high stake examination. There are many issues related

to high stake examinations as discussed in the literature review. Mostly the high-stake examinations are conducted in multiple-choice form for convenience. But multiple choice questions are not sufficient to check someone’s knowledge; MCQs are always closed-ended questions. It will not give students a chance to give their perspective on that topic; he/she has to choose from the given options in the question. Closed-ended questions block the thinking process of the student as they will only choose from the given options. The motive of the CUET examination as per the government is to provide a verified platform for all students to get higher education across the nation and ensure that all students, especially those from rural areas have access to equal possibilities.

But the question arises, do marginalised sections have awareness about the examination, do they have proper resources to prepare for this kind of entrance examination? Earlier studies show that high stake examinations affect marginalised sections of society badly. Those students who belong to well-to-do families have the proper resources to prepare for entrance examinations and crack them. If privileged students face any difficulty in entrance examinations, they rush to coaching centres to fulfil that learning gap. But those students who are devoid of resources always lag in these kinds of examinations. The second main reason for introducing CUET is to end inconsistencies in the results of the 12th boards. According to data from Times of India (30 July, 2021) the number of students who scored 95% marks was 80% more than the last year of class 12th of CBSE Board. Some state boards were more lenient about 10th and 12th marks. Some state boards follow a comparatively strict marking system. In this system, it was unfair for different boards to compete. Concerning this, the government decided to conduct a common entrance test to overcome the disparity in education and to be eligible for the CUET examination, students just need to score 50% on their board examination. It is not difficult for any student to score 50%. In this case students will prefer to concentrate solely on the CUET examination. This will make board examinations less relevant to students. Board examinations are descriptive and focus on testing writing skills, understanding, analysing, and summarising skills. If the board will become less relevant students will not focus on these skills. They will only focus on facts and start memorising things to perform better in MCQ-based tests because MCQ based mostly focus on facts and numbers and only one part of the concept is tested.

Due to this examination, students will ignore liberal arts, literature, and co-curricular activities. As we have seen at the time of NEET and IIT examinations when the difficulty level of examinations is more as compared to board examinations they will rush to coaching centres to fulfil that gap. This can also occur in the case of CUET as students of different boards will participate in CUET.

CUET will be conducted based on NCERT books of class 12th. On many boards, they have different books. As I have compared the syllabus of the NCERT Biology textbook of class 12th with the Biology textbook of the Maharashtra state board, there is a difference between both books. And some boards have shuffled topics of classes 11th and 12th in their books. Like if take the examination of the Kerala board. They have shuffled class 11th and 12th chapters, and they have designed a Biology book likewise, it was found that these students who studied by these books perform better in NEET. When this question was asked by the UGC Chairman regarding the change in the syllabus of NCERT books and other board books, he replied that We are going to give 50 questions out of which you have to attempt 40 only, here we are giving choices to other boards for fair competition. But still, it is an advantage to students studying from NCERT books. In section-2 of CUET which will be related to specific subjects, only 27 subjects are there in the list. If your subject is not in the list you have to choose the nearby subject in your entrance examination, this can also create problems for students. Our government is introducing entrance examinations to every problem rather than solving that problem. This kind of system will limit our education system on tests only.

### Concluding Remarks

The newly introduced CUET is an important issue to study especially in terms of opportunities and the challenges students are facing due to it. CUET is also a high-stake examination. There are many issues related to high stake examinations as discussed in the literature review. Those examinations are considered high stake examinations where a high percentage of a course grade is associated with fewer of the major assessments and due to this fewer feedback points are available to the students. If you score well in high stake examinations, you are considered good otherwise fail. For any high-stake examinations, Multiple-choice questions are probably chosen for

convenience, which only has close-ended questions which will lead to rote learning. MCQ is the least effective way to assess understanding of subjects such as arts, literature, and social science. CUET can increase dummy culture in other students also. If this happens for long in the Indian Education system, our education system will be limited to coaching centres and entrance examinations. So, there is a need to be very vigilant and take conscious decisions about the future way of conducting these examinations.

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# Nuances of Competency-based Education in Teacher Education Programmes in the Light of National Education Policy–2020

Santu Biswas\* and Parimal Sarkar\*\*

An innovative advancement in higher education is competency-based education (CBE), which organises academic content or delivers it in accordance with competencies, or what a student knows and can handle, rather than adhering to a more conventional system. CBE is particularly prevalent in teacher education programmes. CBE gives the student the opportunity to apply prior learning, abilities, and knowledge to finish a course, earn a degree, or finish the training required to accomplish their objectives. Competency-based education can offer a way to reduce completion failure in this environment, and the program's adaptability can fit a student's schedule. Supported by NEP 2020 in India, pedagogy must evolve to make education more experiential, holistic, integrated, and learner-centered. Competency-based learning is a framework for teaching and assessment of learning in which students learn at their own pace and demonstrate their mastery of the acquired knowledge and skills or competencies before they move to the next topic. In the teacher education program, the teacher develops curricular design, T-L process, and Assessment with the help of the CBE system, also the teacher, using the competency-based education software, can track the students' progress and for better guidance. This study is qualitative in nature using secondary data consisting of journals, books and website, research articles, government publications and so. In this paper, the researchers focus on Competency-based education in Teacher education programs.

National Education Policy-2020 is being gradually implemented across the country slowly. To make education more effective and pragmatic major shifts in the domain of teaching-learning, as well as assessment, have been adopted in this new policy. Competency-Based Education (CBE) is the most pertinent one along with another shifting (Gravina,

2017). This paper will address the area where CBE is going to be adopted through this policy. A significant change in school culture, organisation, and pedagogy, competency-based education aims to ensure that all students thrive while addressing the fundamental flaws of the conventional paradigm. To assist students to learn most effectively, to achieve greater equity, to stimulate deeper learning, or to establish a system of continuous improvement, districts and schools turn to competency-based education. Every year, more schools and districts embrace competency-based education at a deeper level, and the majority of states have made beginning or significant regulatory reforms to support competency-based education innovations. Many districts are making the change because schools are aware that without increased personalisation, they will not be able to assist all of their children in becoming college and job ready. The focus of NEP 2020, is on the development of the competencies of a student, which in turn, will help students improve critical thinking and apply what have learned in their daily lives. Major shifts envisioned in NEP are Art-integrated, sports-integrated, and story-telling-based pedagogies would be used to move classroom transactions toward competency-based learning. In terms of optimal learning outcomes, less emphasis on input and more emphasis on performance capacity. The learning outcomes, skills, and personality for each subject in a given class will be matched with formative and adaptive evaluation "as" "of" and "for" learning. Exam to evaluate achievement of learning outcomes by assessing core concepts of knowledge, applicable higher-order skills, knowledge implementation in real-life contexts, and meeting 21st-century ability requirements.

## Historical Background of the Study

Although competency-based education is not a new concept, it first emerged in the 1970s as a way to teach manufacturing workers the specialized skills they needed for their jobs and to prepare teachers for tasks that would be valuable in the classroom (Gervais,

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2016). CBE students were frequently inadequately managed when first introduced in a university setting, and the courses ended up costing more than anticipated. These early CBE courses had significant drop-out rates as a result, and neither students nor faculty found them to be especially engaging (Gomez & Berrocoso, 2012). Later, in the 1990s, Western Governors University (WGU) started introducing courses with competency assessments as a cost-effective way to deliver courses online for minority, low-income, adult students (Canning, 2017). Later, WGU later introduced these courses in collaboration with the State of India. As WGU has expanded from one student in 1998 to 129,169 full-time students in 2020, its knowledge of implementing CBE curricula has greatly benefited from its experience with the CBE model. Starting in 2013, WGU collaborated with a number of community colleges around the nation to launch their own CBE programmes with funds from the U.S. Department of Labor to provide training for displaced employees and other military veterans in high-tech fields. Now this CBE concept has been adopted by Nation Education Policy-2020 for a multidimensional education system with Holistic Development of the child.

### **Significance Of The Study**

The goal of the CBE has been to raise educational standards generally and to close or eliminate learning gaps that have accrued over time. CBE, like many other educational reform projects, strives to close achievement disparities among students and close systemic inequalities in education. It also seeks to recognise and develop each person's special intellectual, emotional, and physical skills (Burnette, 2016). These objectives are also shared by scholars who focus on education. However, it has been observed that in order to grasp CBE with a qualitative paradigm, to make sure that it is understood, and to establish a conceptual consensus, it is necessary. It is believed that policies that are adopted without understanding don't reach the aim (Borgonovo, Friedrich, & Wells, 2019).

In recognition of this fact, the present study attempted to find out about Competency-Based Education (CBE) and its impact on Teacher Education Programs. So researcher attempted to entitle the "Nuances of Competency-Based Education (CBE) in Teacher Education Program in the light of NEP-2020". Objectives of the study are:

- To know the general features of Competency-based education (CBE).
- To highlight the Teacher's Changing role in Competency-Based Education.
- To propose a possible roadmap for introducing Competency-based education (CBE) in Teacher Education.

It is a Qualitative study. It is based on some official documents and secondary data. The conclusion made in the study is based on official documents and Secondary sources. The Secondary sources are data relating to the journal, article, newspaper, etc. Some related information was extracted from various websites. This data was then analyzed and reviewed to arrive at the inferences and conclusions.

### **General Features of Competency-Based Education (CBE)**

#### ***Matching Instruction to the Students' Developmental Preparedness***

Students receive education at their individual readiness level as long as it is required to reach full proficiency.

#### ***Pedagogy Based on Exercises and Encounters that Help Relate Knowledge to Practical Circumstances***

The pedagogy is built around experiences, activities, the integration of the arts, sports, and technology, among other things, and tying the learning to practical applications so that kids may learn to use what they've learned in real-world settings.

#### ***Students Based on their Individual Skills and Weaknesses, they are Taught and Supported***

Every student has the same opportunity to succeed because they are taught and encouraged based on their unique talents and shortcomings. By actively contributing, using critical thinking, problem-solving, effective communication, cooperation, and other abilities, students develop their own knowledge and cultural responsiveness to help them work in ever-changing, diverse environments.

#### ***Concentrate on Formative Assessment So That Real-Time Corrections Can Be Made***

The use of assessment as a guiding tool result in meaningful instruction that gives kids great learning opportunities. The importance of formative assessments is highlighted to help teachers identify

areas in which students are struggling or have misconceptions, allowing them to offer support and give feedback on their progress.

### ***Evaluation in Various Contexts***

To make sure that students learn both a deep comprehension and application, skills or concepts are evaluated in a variety of scenarios.

### ***Progress based on Concept Mastery***

The methods for acquiring competencies are defined as explicit and quantifiable learning outcomes. Students advance when they demonstrate a solid understanding of the material, demonstrate their ability to apply that understanding and demonstrate how they have gained crucial abilities.

## **Teacher's Changing Role in Competency-Based Education**

### ***Learning Patterns***

Recognizing that learning and development patterns vary among and within the cognitive, linguistic, social, emotional, and physical areas, the teacher understands how students grow and develop. With this knowledge, the teacher designs and implements challenging learning experiences that are age-appropriate.

### ***Differences of Learning***

To provide inclusive learning settings where each student may achieve high standards, teachers use their knowledge of individual diversity, varied cultures, and communities.

### ***Environments for Learning***

The teacher works with others to create environments for learning that support both individualised and group learning as well as wholesome social contact, active involvement in lessons, and self-motivation.

### ***Content Expertise***

The instructor must have a solid grasp of the central concepts, research techniques, and organisational frameworks of the discipline(s) he or she teaches in order to guarantee that students understand the subject. To do this, the teacher must create lessons that make the discipline(s) interesting and approachable for the pupils.

### ***Application of Content***

The instructor is adept at making connections between ideas and applying various viewpoints to get

students to use their critical thinking, creativity, and teamwork to solve real-world local and international problems.

### ***Assessment***

In order to involve students in their own development, track their progress, and inform both the teacher's and the student's decision-making, the teacher understands and employs a variety of evaluation techniques.

### ***Organizing Instruction***

To prepare lessons that help each student meet demanding learning objectives, the teacher draws on knowledge of the curriculum, content areas, cross-disciplinary skills, pedagogy, learners, and the context of the community.

### ***Instructional Techniques***

The instructor is aware of, and employs, a variety of instructional tactics to help students get a thorough comprehension of the subject matter and how it relates to other subjects, as well as the skills needed to apply information effectively.

### ***Professional Growth and Ethical Conduct***

The teacher engages in ongoing professional learning while regularly evaluating his or her practise using evidence. He or she pays close attention to the effects of his or her actions on other people (students, families, colleagues, and the community) and adapts instruction to meet the requirements of each learner.

### ***Collaboration and Leadership***

The teacher seeks opportunities to assume leadership roles and control over the academic growth of students. To ensure student success and advance their profession, they also collaborate with families, coworkers, other educators, and community members.

## **Roadmap of Introducing Competency-Based Education (CBE) In Teacher Education**

India is the second largest populated country in the world. Along with this largest population, India is also considered a young country owing to the fact that the largest amount of people belongs to the age group of 15 to 35. More young population signify more outcome, more contribution towards GDP, and more return to society. But without competency, no one can contribute as much as expected from

them. Hence, this heavily young population needs competency-based education for their complete transformation from traditional information based as well as exam-oriented education to knowledge-based experiential learning. Henceforth, to transform the huge masses into a competency-based human resource teachers must be equipped with 21<sup>st</sup>-century skills, required knowledge, and upgrade information. But in the Indian scenario, teacher preparation is still lagging behind in terms of true competency. Competency-based teacher preparation is the need of the hour to make full extended preparation for future human resources.

The following are proposed most important areas for the preparation of the competency-based teacher.

### Problem-Based Learning

This intervention is based on the model of Howard Burrows.

In this intervention, the Learning Facilitator will encourage the learners to solve assignments.

Basic Characteristic Features	Beneficial Significance of Problem-Based Learning
<ul style="list-style-type: none"> <li>Problems presented by the Facilitator will motivate the learners and grab their full attention.</li> <li>Through the assignments on Problem-Solving the Facilitator appraises whether the learner has comprehended the topic or not</li> <li>Problems serve as realistic illustration of the concepts that are being taught.</li> <li>The Problem-Solving Assignments act as a stimulus that elicits the following competencies from the learners; -               <ul style="list-style-type: none"> <li>Decision Making,</li> <li>Critical Analysis, and</li> <li>Creative Analysis</li> <li>Solving Issues</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Learners have the opportunity to analyse the different components of a problem-solving Assignment. Eventually, they leverage their competence and personal experiences to solve the problem.</li> <li>Problem-based learning fosters collaborative teamwork. It enhances the frequency and improves the quality of communication skills among the learners.</li> <li>This model improves the capacity of self-directed learning</li> <li>It is well linked with other models like; -               <ul style="list-style-type: none"> <li>Collaborative Learning</li> <li>Discovery learning</li> <li>Inquiry -based Learning</li> </ul> </li> </ul>

### Multi-perspective Planning

The teacher may act as a facilitator instead of an information provider. The teacher as a facilitator encourages learners to design a critical situation with



Source: <https://digitalpromise.org/wp-content/uploads/2014/05/FINAL-Preparing-Teachers-for-Deeper-Learning-Paper-1.pdf>

a multi-layered problem. When the group completes the task of designing a critical situation with the multi-layered problem, the Facilitator exposes another group of learners to the critical situation and encourages the group to alleviate the multi-layered problem. There are multifarious human resources to support the second group of learners, that can be deployed for mitigating the problem (Sengupta, P & Roy, S, 2022). The different characteristics of the diversified Human Resources are enumerated below;

- Creative Professional
- Analytical Professional
- Emotive Professional
- Collaborative & Communicative Professional
- Empathetic Professional
- Energetic & Hardworking Professional
- Change-Oriented Professional
- Expert in Negotiation and Conflict Management
- Expert in Learning & Development
- Expert in Contingency Planning

Now the second group of learners is inspired by the Facilitator to analyze the multi-layered problem from diversified perspectives and to determine the utilization strategy of each of the available human resources for ensuring the solution of the problem.

### Outcome

- Collaborative Learning will take place among the learners of both the first group and the second group.

## Resource Utilization Matrix

Categories of available Human Resources	Utilization Strategy	Effect of Utilization Strategy on the problem-solving
Creative Professional		
Analytical Professional		
Empathetic Professional		
Emotive & Impulsive Professional		
Energetic and hard-working professional		
Communicative & Collaborative Professional		
Expert in Learning & Development		
Expert in Change Management		
Expert in Contingency planning.		
Change Oriented Professional.		

The above table shows the Teachers' Competency-Based Matrix

- Creative thinking acumen will get enhanced among the learners of both the groups
- Problem-Solving skills will get enhanced among the learners of the second group
- Strategic acumen will get enhanced among the members of the second group

## Conclusion

The Supreme Court appointed the Justice J. S. Verma Commission in 2012, and it concluded that “the majority of stand-alone TEIs - over 10,000 in number - are not truly seeking genuine teacher education but are essentially selling degrees for a fee.” according to NEP-2020. Reforming teacher education has been assigned top priority under NEP-2020. Teachers' duties are of utmost importance in establishing competency-based education. In line with NEP-2020, Experiential learning, which incorporates hands-on instruction, the arts, and sports, will be used at all levels, and inquiry-based pedagogy, among others, as standard pedagogy within each subject, and with explorations of the relationships of the relationships among different subject areas. Classroom activities will change to competency-based learning and teaching to address the achievement gap in learning outcomes (Malakar, 2022).

The teaching profession must be based on proactive conduct, enhanced sensitivity to the training requirements dictated by changes in the socioeconomic environment connected with the aim of maximising human resource potential, and openness to lifelong learning. The need for creating integrative learning experiences that enable the transfer of learning outcomes to particular and generic contexts is related to the transdisciplinary training vision and improves an individual's chances of social integration and professional achievement. As a potential response to the current concerns in the Indian educational system for the reorganisation of the professional qualification route for becoming a teacher, the issues raised in the study provide an opportunity for reflection on teacher education programmes from the perspective of competency-based education.

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# Consistency is the Key to Sustainable Progress

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**Padma Vibhushan, Padma Bhushan, and Padma Shri, Anil Kakodkar, Chairman, Rajiv Gandhi Science and Technology Commission, Government of Maharashtra and Member Atomic Energy Commission, Government of India delivered the Convocation Address at the first Convocation Ceremony of MGM University, Aurangabad, Maharashtra on November 27, 2022. He said, “I am certain; you would rise progressively in your respective careers. I do hope that as you rise, you will retain in you a spirit of trusteeship and contribute substantially to your roots, the society around, the institutions that brought you up, and the nation at large. It is this spirit of trusteeship and the desire to support others who were not as fortunate or as successful as us that makes this world a better place.” Excerpts**

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Inspired by the ‘Father of the Nation’, Mahatma Gandhi, Mahatma Gandhi Mission was established in 1982 to make affordable healthcare and quality education available to all sections of society. MGM University was established by Mahatma Gandhi Mission in 2019 with a vision to provide value-based, research-driven and experiential education that will transform the youth into professionally competent and socially responsible citizens. A number of MGM’s colleges in Aurangabad, many of whom shared a rich legacy of around 4 decades, were brought under the auspices of the University to provide them with more autonomy, additional resources, administrative structure and a host of other facilities. The key aspects MGM University’s working for our emphasis on experiential learning, cultivating the spirit of research and innovation, forming global collaborations, adopting multidisciplinary approach, promoting Indian arts and culture, environment conservation and nurturing sporting talents. I compliment MGM University to have chalked out a well-thought-out strategy.

My congratulations to all those graduating today. A special word of appreciation for top rankers and winners of various medals and awards. The competitive world of today presents unprecedented challenges as well as opportunities for all those who wish to take them. I expect that on the basis of capability that you have acquired here at MGM University, you would be able to realize maximum success for yourself as well as for the country. May all your dreams be fully realized.

I wish to use today’s occasion to talk about higher education in our country. Basically, higher education, in a country like India, should aim at human capability building at the following three levels;

1. Take learners all the way up to the current frontiers of knowledge in respective disciplines,

engage in research to push these frontiers forward & be in the forefront in delivering cutting-edge technologies emerging out of such new knowledge.

2. Build world-class professionals in the practice of state of art technologies and contribute to the welfare of humankind and protecting the ecology as well as the environment around.
3. Pay attention to capability building of people at the grassroots through knowledge empowerment to bridge the disparity gaps which seem to be growing even as more wealth is created. Rural areas need much greater attention in this context.

While pursuing this path, we should also ensure inculcation of a deeper understanding of human values through association and practice, preferably related to applications in different specialized areas one is working on. Inculcation of such values to leverage acquired capability for overall human and nature’s benefits without being exploitative is the key to sustainable progress and should be one of the key objectives of a university.

To be effective in this context, our knowledge institutions have to be both knowledge creators as well as value creators and inculcate such an aptitude and capability in our students through broad-based learning and practice environment. In terms of knowledge creation, we should note that today India is in the third position globally in terms of our scientific publications record with perhaps the fastest growth rate. While there is scope to improve further both in terms of quantity as well as quality, particularly across the full spectrum of institutions in the country, we have to cover a much larger ground in the context of value creation. As an extreme case for us to emulate, I would like to cite the example of Stanford University whose alumni and faculty

have created nearly 40,000 companies that generate around USD \$2.7 trillion in annual revenues. Notice that this number related to a single University is around the size of Indian economy as a whole. We need to create a such ecosystem in our universities. The Research Park at IIT Madras is a good beginning in India in this direction. More such examples are in the making. We need many more such initiatives.

We are now in an era dominated by high-end technologies like Semiconductors, Artificial Intelligence, Computing and Telecom, Clean Energy, Advanced Aerospace and Pharmaceuticals. Soon new knowledge frontiers exploiting Genetics, Quantum Physics, Cognitive and Brain Sciences, etc. would start dominating. We need to quickly close-in the expanding gaps between us and countries advancing rapidly in technologies emerging from these disciplines. Not being able to do so would not only put us at disadvantage but could, in fact, make us vulnerable through the emergence of new technology denial regimes even in commercial sectors, holding hostage entire segments of our nation's economy. We thus must quickly become a massive producer of high-end frontier technologies. A well-knit research entrepreneurship ecosystem involving a close triple-helix partnerships between academia, industry, and government is a critical necessity for this purpose. This is a necessity for our national security, our economic prosperity, and our societal well-being.

As we prepare ourselves to be at the forefront of emerging high-technologies and be a front runner in the global competition, we need to be also aware of the need to quickly bridge growing disparity gaps within the country that are becoming a matter of concern. A key aspect is the urban-rural gap. Nearly two third of India still lives in villages with less than half the average per capita income as compared to urban areas. Bridging the urban-rural divide is thus a matter of urgent necessity in our country. The emerging era of a knowledge driven economy that facilitates democratization and decentralization of technology-led economic activities is thus a great opportunity for transformation of the rural horizon that could bridge the urban-rural divide and contribute to a major boost to Indian economy. This, however, would involve capacity building of local people through education and training in dealing with emerging technologies and also the ability to internalise them including solving problems as they

arise. Eventually, we should create a self-empowered and locally relevant innovation ecosystem that can leverage the opportunities of the knowledge era. In principle, I believe that in the contemporary knowledge era, one could have greater opportunities in villages than in cities reversing the industrial era paradigms. In this context the universities or institutions can be instrumental in setting up what I call a CILLAGE—a knowledge-integrated sustainable village development model that aims to leverage new and appropriate knowledge-based technologies, including some created locally, to create additional and higher-level livelihood opportunities in villages that also include manufacturing and service sector activities in addition to agriculture and allied activities.

In the CILLAGE concept, a local Higher Education Institution serving as a Knowledge Partner hosts a Rural Human and Resources Development Facility (RHRDF) and linked with local community institutions and NGOs, works for the deployment of appropriate technologies for enhanced livelihood as well as related educational and knowledge support in the neighborhood. To facilitate sustained and comprehensive engagement between RHRDF and the neighborhood, a number of Advanced Knowledge-based Rural Technology sub-centers (AKRUTI for short), need to be established in proximity to existing schools. RHRDF and AKRUTIs would be the bridge between local higher education institutions and the neighborhood to spread technology-enabled livelihood on one side and ICT-enabled school education on the other. Exposure of school children to real-life livelihood activities based on contemporary technologies could be a significant value addition from an education perspective as well. The knowledge institution should also engage itself in solving problems that could arise during implementation of new technologies and search for new R&D problems to sustain a transformative knowledge-based ecosystem. The eco-system so created could also participate in the deployment of other Govt. Schemes as well as corporate initiatives.

The spread of technology adaptation and continuous access to new technologies could create better livelihood opportunities in the rural domain that eventually would compare well with opportunities in the urban domain thus leading to convergence of the

best of the city (i.e., opportunities for self-progress, modern infrastructure for education etc.) with best of a village (i.e., clean, calm and eco/human-friendly environment). Thus, the selected cluster of villages (Village) around a vibrant knowledge institution can be expected to become preferred working destination for young innovative and creative generations for leveraging local human and raw material resources on one side and new knowledge technologies on the other. Villages could thus become places, better than both cities and villages and may become the preferred habitats for the new age society in most of emerging India. This approach is being tried out on an experimental basis at a few places in Maharashtra. I must also mention that a number of very challenging deep research problems can be identified through such engagement. Our top-tier higher education and research institutions and their graduates have a special role in this context. In partnership with local Higher Education Institution, they can trigger a locally relevant high-tech-oriented innovation ecosystem to uplift rural India on the lines described above.

Technology and technology products that offer differentiating capabilities to their users, significantly add to their competitiveness and hence to their power both in the marketplace as well as strategically. This has several ramifications for our national progress as well as our relative position in the competitive world that exists around us. Both these dimensions are of immense importance. While technology empowers humans, the education that we provide to our young people should also make them responsible so as to ensure that the use of technology remains non-exploitative even as technology is used to empower everyone around through knowledge and minimize the disparity gaps that are becoming alarming by the day. Speaking more broadly, the process should bridge the gaps in key human needs viz. identity, prosperity and security and usher in peace and harmony. This should be both a global as well as a local effort. Bridging the disparity gaps

globally as well as within the country, to eliminate rich-poor, urban-rural and other divides even as technology uplifts the society as a whole is the key to a peaceful and harmonious world in my view. While this is a complex matter having multiple dimensions, I do believe that knowledge and more particularly knowledge technologies can be most effective in addressing this challenge. That is where young graduates from higher technical education and research institutions come in. I do wish all of you to be successful in your professional career and make an important difference to our country in the above context.

I wish that all of you would give some serious thought to what I have said above and decide your respective course of action. It should be our collective endeavor to progressively move towards making the world a better place. Through a lifelong learning process and maintaining knowledge institutions, industry and society are interconnected with each other, each one of us, regardless of the career we decide to pursue, can meaningfully contribute to this objective. After all, we are all here in this world to play our respective roles. Our happiness and joy in life depend on how well we play our roles. We must also remember that our happiness depends on the happiness all around us.

Dear students, I once again wish all of you well in your respective further pursuits. I am certain; you would rise progressively in your respective careers. I do hope that as you rise, you will retain in you a spirit of trusteeship and contribute substantially to your roots, the society around, the institutions that brought you up, and the nation at large. It is this spirit of trusteeship and the desire to support others who were not as fortunate or as successful as us that makes this world a better place.

Once again, my best wishes to you all. Thank you.

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## CAMPUS NEWS

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### **National Workshop on Advanced Research Methodology and Statistical Analysis**

A three-day National Workshop on 'Advanced Research Methodology and Statistical Analysis for Social Science' was organized by the Department of Economics, GTN Arts College, Dindigul, Tamil Nadu from January 19-21, 2023. The event was sponsored by ICSSR-SRC, Hyderabad. This workshop was designed to offer practical guidelines and direct the researchers through all the stages of research from identifying a research problem to the submission of a dissertation, report writing and research article. The course intended to deal with a variety of quantitative and qualitative research methods used in social science research. It also gave exposure to data analysis with the help of software packages. The research scholars, and faculty who were directly involved in the research participated in the event.

During Inaugural Function, Workshop Director, Dr. P Ravichandran, Associate Professor and Head, GTN Arts College delivered the welcome address and highlighted the crucial role played by research in promoting academic excellence in a higher education institution. He explained the importance of the event for young researchers to be abreast of the latest development in the methodology of research analysis and publish as many articles as possible in a peer-reviewed journal.

Dr. P Balagurusamy, Principal, GTN Arts College, Dindigul delivered the Presidential Address. He insisted the participants to contribute quality research for the betterment of higher education. He explained the design of the workshop to the participants and assured them of the learning experience provided in the workshop through both theory and practical sessions surely equip the researchers to carry out successful research works and overcome potential challenges. He explained the importance of the workshop for the research scholar and academic community. He also appreciated the efforts of the team that organized the workshop.

Dr. B Sudhakar Reddy, Honorary Director, ICSSR-SRC, Hyderabad delivered his keynote address and insisted young researchers involve themselves in conducting research on various social issues and come out with valuable suggestions for policymakers

The importance of education and how education is understood from different perspectives by scholars from different disciplines as well as the importance of being a good researcher and while speaking on advised the participants how to remove the gap between content and pedagogy by integration, collaboration of other departments and with other programmes also the linkage between the progress in society and research by conducting research from long term career prospects.

Felicitation was given by Dr. Durai Rethinam, Director, GT N Arts College, Dindigul and Dr. M Ponniah, GTN Arts College, Dindigul. Lion. Dr. K Rethinam, Secretary and Correspondent of the College appreciated the faculty and participants for organizing a very useful programme for enhancing quality research.

Dr. Jacob Kalle, Technical Officer, ICSSR-SRC, Hyderabad spoke on 'Introduction to Social Science Research, Concept Mapping and Formulation of Research Problem'. He explained about social science research, the scientific method applied to social sciences includes a variety of research approaches, tools and techniques for collecting and analyzing qualitative or quantitative data. These methods include laboratory experiments, field surveys, case research, ethnographic research, action research, and so forth. He also explained 'Concept Mapping and Formulation of Research Problems'.

The two technical sessions were handled by Dr. B Sudhakar Reddy, Director, ICSSR-SRC, Hyderabad and Dr. P Ravichandran, Associate Professor and Head, Department of Economics, GTN Arts College, Dindigul who gave an overview of the Literature Review/Problem Identification: Sources and Criteria. The session applied more focus on how to review the literature and to find which are critical parts and gaps in the research process, the sampling process of research and the steps to be undertaken while pursuing research. Conceptual facts related to sampling techniques and their classification into probability and non-probability sampling were clarified. Biases associated with determining sample design were explained and discussed in detail. In continuation to that activity, a session was carried out by the resource persons to understand the concept of sampling. He elaborated on the technical aspect of writing citations and referencing that every

researcher needs to know. He clearly conveyed to the participants how to write the format that must be followed in citing books, a journal, articles, websites, case studies, reports, international and national documents and periodicals, single authors to many others through APA style. In addition to that confusion about when and where to use Greek abbreviations like Ibid, Id, and Supra, Infra, etc. are discussed among participants. This conceptual work was followed by the activity provided by the speaker. A simple exercise was given to the participants and active participation helped all the participants to the clarification of using citation and referencing. The speaker elaborated distinctive features of qualitative research designs and important operational steps of qualitative data collection methods in brief. He covered basic differences between the quantitative and qualitative two approaches on various summaries of presentation methodological parameters. He stressed the empirical and non-empirical are the two ways through which knowledge can be pursued. This session provides insight to participants about how last century quantification has become immensely prevalent in the social sciences, Explanations for this growing use of quantitative measures, key characteristics of quantitative research, the growing dissatisfaction with quantification, and criticism of quantitative research. It makes the researchers think about the research process and the significant need in the present research condition. The speaker provides the concept interestingly by having three parts in his lecture with an introduction of knowledge about poststructuralist concepts, post-structuralist thinkers and philosophies, deconstruction, logo centrism, discourse, and structuralism.

On the Second day of the event, the first two sessions on 'Primary and Secondary Data Collection', 'Coding of Question and Pre Testing and Pilot Testing' were handled by Dr. C. Paramasivan, Assistant Professor and Research Supervisor, Thanthai Periyar EVR College, Trichy. He talked about primary data that means original data that has been collected specially for the purpose in mind. It means someone collected the data from the original source firsthand. Data collected this way is called primary data. The people who gather primary data may be an authorized organization, investigator, or enumerator or they may be just someone with a clipboard. Those who gather primary data may have knowledge of the study and may be motivated to make the study a success. These people are acting as a witness so primary data is only considered as reliable as the people who gathered

it. Secondary data is data that has been collected for another purpose. A pilot survey is a strategy used to test the questionnaire using a smaller sample compared to the planned sample size. In this phase of conducting a survey, the questionnaire is administered to a percentage of the total sample population, or in more informal cases just to a convenience sample. An important factor was to ensure that the questionnaire items accurately addressed the research questions. The pilot also tested whether the questionnaire was comprehensible and appropriate and that the questions were well-defined, clearly understood and presented in a consistent manner.

The next session on 'Frequency Distribution t-Test, z-Test, ANOVA, Correlation, Regression and Cluster Analysis' was handled by Dr. S. Pushparaj, Associate Professor and Head, Department of Econometrics, Madurai Kamaraj University, Madurai. He explained that one can use the one-sample t-test described above to compare the mean of any variable measured on your subjects to a constant. As long as you have a value on the variable for each of your subjects, you can use the one-sample t-test to compare the mean of that variable to a constant. He said that the most common way to determine whether there are differences in the means of a continuous DV across a set of three or more groups is to perform an Analysis of Variance (ANOVA). He described ANOVA in detail.

The session on 'Reliability Checking, Hands-on Training (SPSS) and Checking Plagiarism' was handled by Dr. P Muthupandi, Assistant Professor of Education, Madurai Kamaraj University, Madurai. He said that the term reliability in psychological research refers to the consistency of a research study or measuring test. He described the details of the types of reliability, plagiarism, etc. while Dr. Muthupandi described plagiarism, he also explained its types i.e. Complete Plagiarism, Source-based Plagiarism, Direct Plagiarism, Self or Auto Plagiarism, Paraphrasing Plagiarism, Inaccurate Authorship, Mosaic Plagiarism and Accidental Plagiarism.

Dr. P. Balasubramanian, Assistant Professor in Statistics, Thanthai Periyar Government Arts and Science College, Trichy delivered his lecture on 'Discriminant Analysis, Factor Analysis & AMOS SEM Models, Multi-dimensional Scaling & GLM Univariate Analysis'. He explained how often factor analysis is used in data reduction to identify key factors that explain most of the variance observed in much large number of manifest variables. He explained the

concept of data and model with live global examples and explained parsimonious theory which discusses the concept of data and model. He stressed that understanding of the problem is more important for a good model. Also, he explained multidimensional scaling and made a point that finding dissimilarities from the similarity is multidimensional scaling. On the other hand, he taught basic concepts of Regression and Structural Equation Modeling. He extended his session by explaining the equations of SEM and taught how to interpret the equation of multiple regression using SPSS and explained how to find out the relationship between constructs and items in the measurement model and find the relation between construct and structural modal.

He insisted that the structural model can be built only if the measurement model is reliable and valid. He brought out the differences between types of research, and different scales along with their divisions and subdivisions which included Nominal, Ordinal, Interval, and Ratio Scales. Thereafter he gave a broader overview of Comparative and Non-comparative scales. He concluded his lecture by discussing the relationships between reliability and validity. He explained the complexities of testing the validity and reliability and cautioned the participants of the possible errors involved while collecting and validating the data while simultaneously dealing with the other hurdles of doctoral research. He also gave an introduction to AMOS and explained the basic tools and gave hands-on experience in AMOS and elaborated on observed variables, unobserved variables, error term factor variance, and factor loading.

The Valedictory Session began with a brief outline of the sessions of the workshop. This was followed by a brief feedback session with the participants of the workshop. All participants expressed their satisfaction with the workshop and overall coordination of the faculties of the department as well as the whole program. The Certificates were presented to the participants by the college Director Dr. Durai Rethinam. The workshop was concluded with a vote of thanks proposed by Dr. S Sujatha, workshop Co-Director. The programme was concluded on a happy note from everyone. Workshop Co-Director Dr. S Sujatha, Assistant Professor and Head, Department of Tamil and Mr. S Arun, Assistant Professor, Department of Economics, GTN Arts College, Dindigul made the arrangements for the workshop.

### **International Conference on Blended Learning Ecosystems for Higher Education**

A three-day International Conference on 'Blended Learning Ecosystems for Higher Education' is being jointly organized by the ICAR- Indian Agricultural Statistics Research Institute, New Delhi and the World Bank under NAHEP during March 21-23, 2023.

Agriculture is one of the mainstays of the Indian economy due to its significant role in rural livelihood, employment, and national food security. To realize India's aspirations of becoming a 5 trillion-dollar economy by 2025, there is an utmost need for a digital agricultural higher education system in India to evolve in sync with the fast-changing international scenario.

The past decade has witnessed multiple global disturbances and particularly COVID-19 pandemic, which have thrown new challenges in ensuring the continuity of education in basic and higher education institutions across the world. This has motivated higher agricultural education institutions to adopt newer methods more easily for teaching & learning and leverage the power of digital technologies for better quality delivery of education.

In the post-pandemic world, the education sector has undergone a massive transformation with digital tools and technologies becoming the mainstay of new educational ecosystems. Educationalists across the world have been exploring alternative modes of quality education blended with traditional and in-person modes of education. Digital transformation is altering how we learn, enabling innovative distribution of education across time and space. The Themes and Subthemes of the event are:

#### ***Strategies for Blended Teaching-learning***

- Blended Learning for Higher Education in the Post-Pandemic Era in the Context of National Education Policy (NEP)- 2020.
- Designing Effective Assessments for Online Learning Environments.
- Professional Development and Support for Online Faculty: Challenges and Opportunities.
- The Role of Emerging Technologies in Creating Immersive Learning Experiences.

### ***Technologies for Blended Learning***

- Integrating Technology and Education to Diversify Online Learning and Teaching.
- Technology Considerations to Build Platforms at Scale and Cater for Different User Needs.
- Free Open-Source Tools and Technologies to be Leveraged.
- Learning Analytics: Tools and Possibilities.
- Developing, Designing and Implementing Augmented Reality Within Learning Environments: Reflection and Ethical Considerations for its Implementation.
- Game Based Approach for Teaching to Ignite Student Interest and Drive Outcomes in a Collaborative Environment.

### ***Sustainability in the Blended Learning Ecosystem***

- Developing Sustainable Teaching and Learning Environments.
- Faculty and Instructional Designers: Learning About Successful Collaborations from Other Professions.
- Creating an Effective E-Learning Culture: The Pedagogical Variations for Online Learning and Teaching.
- Addressing Security and Privacy Issues and Concerns About the Use of Digital Platforms for Students.
- Systems Thinking in a Marketplace Design.
- Role of Blended Learning Environments in Peer-To-Peer Learning.

### ***Building Stakeholder Capacities to Navigate in a Blended Teaching-learning Ecosystem***

- Building Optimal Capacities for Implementing Blended Learning on College Campuses.
- Networked and Self-Directed Approaches to Professional Development in Online Teaching and Design.
- Easy to Use-Content Development Tools and Methods for Higher Education Faculties.
- Leading Change for Effective Faculty Development Programmes.

### ***Contemporary Curriculum for Agricultural Education***

- Curriculum and Pedagogical Changes for a Blended-Learning Environment.

- Faculty Preferences While Creating Courses for the Online Environment.
- Designing Effective Courses Online: Effective Pedagogy for Online Courses for College Faculty.

For further details, contact Organising Secretary, ICAR- Indian Agricultural Statistics Research Institute, New Delhi, E-mail: [icble2023@icar.gov.in](mailto:icble2023@icar.gov.in). For updates, log on to: [www.icar.org.in/events/](http://www.icar.org.in/events/)

### **National Conference on Emerging Issues in Functional Areas of Management**

A two-day National Level Conference on 'Emerging Issues in Functional Areas of Management' is being organised by the Department of Business Administration, Vidyavardhaka College of Engineering, Mysuru (Karnataka) during March 24–25, 2023. The primary objective of the event is to provide a platform for Academicians, Professionals and Researchers for a comprehensive deliberation on the contemporary issues in the fields of accounting, finance, banking, insurance, human resource management, marketing management, etc.

Economies all over the world are witnessing remarkable changes/developments and this is true even in the case of India. This is also true even in the case of the Indian industrial economy – from protectionism to market economy, from labour-intensive to capital-intensive, from agrarian to service economy, etc. Consequently, there have been substantial changes in the management of crucial functions such as financial management, banking and insurance services, accounting, human resource management, marketing management, etc. The Subthemes of the event are:

- ***Accounting and Finance.***
- ***Banking and Insurance.***
- ***Human Resource Management.***
- ***Marketing Management.***

For further details, contact Conference Secretary, Dr. J Madegowda, Professor, Department of Business Administration, Vidyavardhaka College of Engineering, P B-206, Gokulam III stage, Mysuru–570 002 (Karnataka). E-mail: [jmadegowda@vvce.ac.in](mailto:jmadegowda@vvce.ac.in). For updates, log on to: [www.vvce.ac.in](http://www.vvce.ac.in).

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### ***ANVESHAN: Student Research Convention Central Zone***

A two-day Central Zone Student Research Convention *ANVESHAN-2022-23* was organized successfully by Ravenshaw University, Cuttack, Odisha during January 24-25, 2023 under the aegis of the Association of Indian Universities (AIU), New Delhi. A total of 89 participants registered from 18 universities and about 54 projects were accepted for the event.

The universities from the central zone that participated in the convention are: Ravenshaw University, Cuttack, Odisha, Sambalpur University, Sambalpur, Odisha, Fakir Mohan University, Balasore, Odisha, Khallikote Unitary University, Berhampur, Odisha, Maharaja Sriram Chandra Bhanja Deo University, Berhampur University, Berhampur, Rama Devi Women's University, Bhubaneswar, Odisha, Gangadhar Meher University, Sambalpur, Odisha, Rajendra University, Balangir, Odisha, Gandhi Institute of Engineering and Technology, ISBM University, Sri Sri University, Cuttack, Centurion University of Technology and Management, Kalinga Institute of Social Sciences, Odisha, Pt. Ravishankar Shukla University, Raipur, Dr C V Raman University, Bilaspur, and Kalinga University, Raipur.

The Central Zone Students Research Convention was formally inaugurated at Annex-1 of Seven Pillar of Wisdom on 24<sup>th</sup> January, 2023 by lighting the lamp by the distinguished guests followed by a floral welcome to the dignitaries on the Dias.

The Welcome Address was delivered by Prof Sudarshan Mishra, Coordinator, Central Zone Convention. He presented the objectives of the *ANVESHAN* and Central Zone Convention. He also discussed the role of AIU in promoting research culture among the students of Higher Education Institutions (HEIs). Dr Sarat Kumar Rout, University Coordinator of the Convention introduced the distinguished Guests. In his Inaugural Address, Prof Sanjay Kumar Nayak, Vice Chancellor, Ravenshaw University emphasized the changing concerns of Research trends from traditional to interdisciplinary approaches. He focused on industry connect research and innovation which can fulfill the

vision of NEP-2020 in higher education. The Chief Guest, Prof Aparajita Chowdhury, Vice Chancellor, Ramadevi Women's University said that Research is an integrated part of Higher Education. While highlighting research as common exposure to students now, she said that students can start research at 4 year UG level now as envisaged in NEP-2020. Faculty members and research supervisors need to inculcate natural curiosity among the young and budding researchers for quality enhancement in Research and Innovation. She focused on interdisciplinary and multi-disciplinary approaches which can be helpful in achieving the Sustainable Development Goals - 2030 and the NEP-2020. Prof Chowdhury said that ethics in research can sustain the research eco-system better. Research and Innovation thus can develop the intellectual, analytical and critical capacities among the researchers. Further, she highlighted that research dissemination needs to be done to connect to the people. Organizing a research convention can raise research awareness among scholars. She expected research to be context specific taking local and contemporary issues into consideration and new areas of research to be promoted. She suggested Ethnographic studies need to be conducted on digital humanity and the post-COVID effect on living and development.

In his Presidential Address, Dr. Amarendra Pani, Director I/c and Head, Research Division, Association of Indian Universities, New Delhi anticipated the Student's Research Convention has ushered in unprecedented success in connecting budding researchers in research and innovation activities. He emphasized that there is a need of doing application and action-oriented research. A basic understanding of research needs to be known by the researchers. He suggested that research be conducted for knowledge revision, generating and devising new tools to solve emerging problems at par with the world-class level research activities. A vote of thanks was proposed by the senior faculty member, Dr B C Das. The inaugural session was coordinated by Ms. Sandhya Rani Pal.

After the inaugural session, the participants presented models/posters of their respective



Research projects in five groups. They were from the following areas:

**Basic Science:** There were thirteen (13) Projects in the Basic Science Section. The Models/ Posters were assessed by three experts. This was moderated by Mr. Ranjit Giri, a faculty member of the Department of Education.

**Agriculture:** There were seven (7) Projects in the Agriculture section. The Models/Posters were assessed by three experts. This was moderated by Dr Gitanjali Mohanty, a faculty member of the Department of Education.

**Engineering and Technology:** There were nine (9) Projects in Engineering and Technology section. The Models/Posters were assessed by three experts. This was moderated by Ms. Subhrajyotsna Biswal, a faculty member of the Department of Education.

**Health Science and Allied Subjects Pharmacy, Nutrition, etc.:** There were nine (9) Projects in Health Science and Allied Subjects Pharmacy, Nutrition, etc. section. The Models/Posters were assessed by three experts. This was moderated by Dr P B Binjha, a faculty member of the Department of Education.

**Social Science, Humanities, Commerce, and Law:** There were sixteen (16) Projects in Social Science, Humanities, Commerce and Law section. The Models/Posters were assessed by three experts. This was moderated by Dr Ajay Kumar Mohanty, a faculty member of the Department of Education.

Post-lunch session of the first day started with stream-wise oral/podium presentation of 54 projects followed by interaction. As per the assessment of the experts, all projects were through for oral presentation. Student researchers presented their projects in Power Point mode which was assessed by the experts present.

On the basis of the assessment of the model/ poster presentation and podium/oral presentation and interaction with the student researchers, stream-wise winner list was prepared by the experts.

Spectrums of cultural events were presented by the students in the evening covering Odisha, classical dance, Sambalpuri dance, patriotic dance, semi-classical dance, and Yoga dance and presentation of solo songs.

Day two began with a Plenary Talk on 'Industry-Academia Interface: NEP-2020' which was organized

in Annex-1 of Seven Pillars of Wisdom. The plenary talk was delivered by Prof Sanjay Kumar Nayak, Vice Chancellor, Ravenshaw University. Prof Nayak focused on Industry Connect Research. He expressed concerns over the challenges being faced now in achieving the major reforms of higher education and research as envisaged in NEP-2020 and SDGs 2030 for a sustainable system. He emphasized major reforms in curriculum upgrading, keeping faculty updated with industry and developments, linking instructional process to the world of works, making internship mandatory along with the training of faculties on inbuilt internship for four weeks, MoUs with public and private sector undertakings for creation of internship training facilities, the establishment of IDEA Centres in selected institutions and bridging academia- industry gaps which can lead the students to employability and make them industry ready. He emphasized institutional orientation depicting strength with reference to infrastructural facilities and human resources to help the industry. He highlighted functional areas of industry connect, the success parameters of outcome-based learning approach, and suggested steps of quality improvement for industry connect. Prof Nayak proposed two models as Unique Academic-Industry Interface Model and Industry-Academia/Laboratory Partnership Model in view of fulfilling the requirements of the industry for employability. A vote of thanks was proposed by Prof Sudarshan Mishra, Coordinator of the Students Research Convention.

In the Valedictory Session of the Convention, the Zonal Coordinator, Prof Sudarshan Mishra presented a two-day report on the Convention. The distinguished guests were introduced and given a warm welcome by Dr B C Das.

The Chief Guest of the Valedictory Session, Prof H K Senapaty, Former Director, NCERT, New Delhi and Professor of Regional Institute of Education, Bhubaneswar emphasized the research based on the Indian ethos, culture and knowledge system while describing his concerns over the crucial time to implement NEP 2020 in school education, teacher education, technology use, higher education and research. He said that we are at a point of time for the creation of an equitable vibrant knowledge society and preparing global citizens. He expressed that learning to live together '*Vasudhaiva Kutumbakam*' is the root of Indian culture and civilization. Prof Senapaty focused on a robust

The following student researchers were felicitated:

Name of the Project	Name of Participant	Name of University	Position
<b>Agriculture</b>			
Evapocooler	Jiban Jyoti Behera, Suvam Roy, and Mahendra Kalyan senapati	Gandhi Institute of Engineering and Technology University	1 <sup>st</sup>
Effect of Agricultural Modernisation on Marginal and Small-Scale Farmers in Context of Climate Change Using Geospatial Technology: A Case Study of Paschim Medinipur, West Bengal.	Pulakesh Pradhan	Ravenshaw University, Cuttack, Odisha	2 <sup>nd</sup>
Development of Easy and Cost-effective DNA Extraction and Purification Protocol	Amar Kumar Muska	Kalinga Institute of Social Sciences, Bhubaneswar, Odisha	3 <sup>rd</sup>
<b>Basic Science</b>			
A Novel Fluorescence Turn-on Ratiometric Sensor Framework for the Detection of Creatinine in Aqueous Medium	Sujata Bais	Ravishankar Shukla University, Raipur, C.G.	1 <sup>st</sup>
Generation of Electricity by Using Waste Material	Asmita Patel, Jagadananda Swain, and Mandakinee Bhoi	Dr C V Raman University, Kota, Chhattisgarh	2 <sup>nd</sup>
Dye Sensitized Solar Cell from Plant Pigment	Nishikanta Panda, Shashanka Shekhar Sahu, and Kunal Pattanaik	Dr C V Raman University, Bilaspur	3 <sup>rd</sup>
<b>Engineering and Technology</b>			
Stochastic Computational Modeling Approaches for Characterization of Neuronal Communication Systems	Subhasmit Biswal	Ravenshaw University, Cuttack, Odisha	1 <sup>st</sup>
Intelligent Switch	Rohit Kumar, Pattnaik, Suraj Kumar Patra, and Krishnamrit Abhisek	GIET University Gunupur	2 <sup>nd</sup>
Object Distance Measurement Detection With Real-Time Camera For Surveillance Mechanism	Ritwik Dalmia, Aradhya Bratamay Majumder	Sri Sri University, Cuttack, Bhubaneswar, Odisha	3 <sup>rd</sup>
<b>Health Science and Allied Sciences</b>			
Non-invasive Blood Glucose Detection via Exhale Breath Analysis with SPR Based Design using Three-layer Structures	Ashok Kumar Sahu	Berhampur University, Berhampur, Odisha	1 <sup>st</sup>

Name of the Project	Name of Participant	Name of University	Position
Green Synthesis of Zinc Oxide Nanoparticles Using Banana Leaf Extract and Its Application in Sunscreens	Prativa Rout	Revenshaw University, Cuttack, Odisha	2 <sup>nd</sup>
Moss Air Purifier - An Eco-friendly Natural Alternative to Mechanical Air Purifier	Jabamayee Barik, Bhabesh Kumar Nayak	Fakir Mohan University, Balasore, Odisha	3 <sup>rd</sup>
<b>Social Science, Humanities, Commerce and Law</b>			
Impact of Enterprise Resource Planning (ERP) Systems on Financial Performance of Regional Rural Banks (RRBs) of Odisha: An Empirical Study	Ashyashree Praharaj	Berhampur University, Berhampur, Odisha	1 <sup>st</sup>
Smiling Soul	Soumya Podha, Sameer Jain, Partha Pratim Khamari	Rajendra University, Balangir, Odisha	2 <sup>nd</sup>
Lived Experiences of Transgender towards Parental and Social Support for their Education: A Phenomenological Study	Pranayini Sahoo, Jateendra Das, and Prajakta Das	Ravenshaw University, Cuttack, Odisha	3 <sup>rd</sup>

educational reforms under NEP -2020 by drawing attention to education–industry connect; adoption of outcome-based vocational education for better employability in India; shifting academic focus from content mastery to competency mastery; practice of subject-based pedagogy; and education and research with interdisciplinary, multi-disciplinary and Collaborative approaches. He said that only 5% of students are opting for vocational education in India whereas 95% of students are opting vocational education in South Korea. That is why our graduates are not employable and hence, NEP-2020 has given emphasis on vocational education. He focused on the development of a curriculum framework for ECCE and Alternative Education like, School Education and Teacher Education. He emphasized the contextualization of our research findings. He assured us we all have the ability and also doing our best in research but we need to think about how our research findings can best be disseminated and used by others. For this, all the institutions working at the top level and institutions working at grassroots level need to join hands together for a better working culture.

Dr Amarendra Pani, Director I/c and Head announced the result of the winners of the Research Project Competition.

The winners were given Medals and Certificates. It was announced by Dr. Pani that the

National Level Students Research Convention will be held on 16-17 March, 2023 at Ganpat University, Gujarat.

In her presidential address, Prof Asima Sahu, Chairperson, P G Council, Ravenshaw University said that research is not a destination but a lifelong journey and the quest for knowledge is intrinsic to human life. Researchers' experiences inspire others to learn and imagine in a novel way. Research requires creativity and original thinking. She emphasized that there is the need for increased allocation of budget in Research and Innovation. The prevalent best practices in each field need to be focused. National Research Foundation has been proposed in NEP-2020 to develop a research ecosystem in our country. She said that most of the allocation being made for scientific research is for physical and natural sciences. Research in Social Sciences and humanities is also equally important. Nevertheless, it has been neglected for funding. There are issues like, how to connect with common people, climate change, green energy, and astronomy which need to be investigated through research. Our Hon'ble Prime Minister has added the slogan of '*Jay Anusandhan*'. There is a need for infrastructural development in higher education institutions to facilitate research activities. In the end, Dr S K Rout proposed a vote of thanks. The Programme ended with National Anthem. □

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# THESES OF THE MONTH

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## SCIENCE & TECHNOLOGY

### A List of doctoral theses accepted by Indian Universities (Notifications received in AIU during the month of Dec 2022-Jan 2023)

#### BIOLOGICAL SCIENCES

##### Biotechnology

1. Lakshmi, EGA Sowjanya. **Application of novel microbial strain improvement techniques for cellulase production in bacillus subtilis VS15.** (Dr. Muddada Sudhamani), Department of Bio-Technology, Koneru Lakshmaiah Education Foundation, Guntur.

2. Swargiary, Pooja. **Understanding the epigenetic diversity of human oral and esophageal cancers in North-East India.** (Prof. Aupam Chatterjee and Dr. Atanu Bhattacharjee), Department of Biotechnology & Bioinformatics, North Eastern Hill University, Shillong.

##### Life Science

1. Ansari, Jamal Ahmad. **Effect of developmental arsenic exposure on phenotypic transition of microglia and its consequences in mouse brain.** (Dr. Debabrata Ghosh), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

2. Dewasya, Pratap Singh. **Studies on traditionally-used medicinal plants towards development of a hepatoprotective formulation.** (Dr. Ashutosh K. Shukla), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

3. Gautam, Shashyendra. **Mass spectrometry based plasma proteomics approach for oral cavity squamous cell carcinoma screening in human volunteers.** (Dr. Sheelendra Pratap Singh), Faculty of Life Science, Academy of Scientific and Innovative Research, Ghaziabad.

4. Lakshmi, S. **Insights into the mechanism of action of epoxyazadiradione and a pyrazole amide derivative against triple negative breast cancer cells.** (Dr. Priya S), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

5. Nasima Bano. **Generation of IR deletions and point mutants of critical residues to examine their subcellular localization, cytoplasmic and nuclear activities.** (Dr. Dr. Mohd Jamal Dar), Faculty of Life Science, Academy of Scientific and Innovative Research, Ghaziabad.

6. Sardana, Viren. **Pattern recognition and data analysis in diagnosis of lung disease.** (Dr. Anurag Agrawal), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

7. Singh, Arpita. **Study on quorum sensing mechanism of stress tolerant plant growth promoting rhizobacteria for improving Zea mays productivity under drought stress.** (Dr. Puneet Singh Chauhan), Faculty of Biological Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

##### Microbiology

1. Baisthakur, Pankaj Onkarsing. **Production and characterization of bioactive secondary metabolites from streptomyces species associated with roots of leguminous plants.** (Prof. T A Kadam), Department of Microbiology, Swami Ramanand Teerth Marathwada University, Nanded.

##### Zoology

1. Ansari, Sumayya Fatima Ansari Mohd Masooduddin. **Use of scales as biomarkers to determine changes in habitat ecology and biology of some fresh water teleosts.** (Dr. S P Chavan), Department of Zoology, Swami Ramanand Teerth Marathwada University, Nanded.

2. Chetri, Ranju. **Physiological and metabolic changes in response to photoperiods in the migratory red-headed bunting, *Emberiza bruniceps* Brandt.** (Dr. A S Dixit), Department of Zoology, North Eastern Hill University, Shillong.

#### EARTH SYSTEM SCIENCES

##### Environmental Science

1. Sun, Kitboklang. **Carbon stock assessment in Community Forest of Khasi Hills, Meghalaya.** (Dr. S S Chaturvedi), Department of Environmental Science, North Eastern Hill University, Shillong.

#### ENGINEERING SCIENCES

##### Chemical Engineering

1. Patil, Pravin Bhikaji. **Studies in degradation/**

**removal of pollutants/organics using cavitation.** (Dr. Vinay Manoharrao Bhandari), Faculty of Engineering Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

### **Computer Science & Engineering**

1. Chaudhury, Bhagwat Prasad. **Air quality monitoring and prediction using Internet of Things (IoT) based frameworks and cloud services.** (Prof. Ajit Kumar Nayak), Department of Computer Science & Engineering, Siksha O Anusandhan University, Bhubaneswar.

2. Dastagiraiiah, C. **A stochastic approach for optimal resource utilization in cloud environment.** (Dr. V Krishna Reddy), Department of Computer Science & Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

3. Deshmukh, Shyamrao Babasaheb. **Enhanced learning based straggler mitigation approaches for performance improvement in distributed processing frameworks.** (Dr. K Thirupathi Rao), Department of Computer Science & Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

4. Gopisetty, Rathnamma. **Support-based prefetching and client-side caching algorithms for improving performance of the distributed file system.** (Dr. T Raghunathan and Dr. C Shoba Bindu), Department of Computer Science & Engineering, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

5. Kadam, Anil Kumar Jagannathrao. **Study and implementation of framework for big data mining scheduler in cloud computing environment.** (Dr. K C Jondhale), Department of Computer Science & Engineering, Swami Ramanand Teerth Marathwada University, Nanded.

6. Kanaparti, V Panduranga. **An improved chunk-based framework on deduplication in secure cloud computing.** (Dr. V Krishna Reddy), Department of Computer Science & Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

7. Naresh, T. **Novel implementation of resource allocation methodology in cloud computing through workflow optimized scheduling and task scheduling.** (Dr. V Krishna Reddy and Dr. A jayalakshmi), Department of Computer Science & Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

8. Yakoob, S K. **Enhanced integrated key management and dynamic access control policies in cloud storage environment.** (Dr. V Krishna Reddy), Department of Computer Science & Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

### **Electrical & Electronics Engineering**

1. Bharathi, Manne. **Micro and small-scale design and performance evaluation of medium speed permanent magnet flux reversal wind generators.** (Dr. M Kiran Kumar and Dr. Udochukwu B Akuru), Department of Electrical & Electronics Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

2. Chandra Babu, P **Performance improvement of MPPT controllers using intelligent techniques.** (Dr. B Venkata Prasanth and Dr. P Suajtha), Department of Electrical Engineering, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

3. Naik, Jyotirmayee. **Short-term prediction of wind speed and wind power using hybrid signal processing and machine learning techniques.** (Prof. P K Dash), Department of Electrical Engineering, Siksha O Anusandhan University, Bhubaneswar.

4. Pareek, Vishakha. **Machine learning techniques for electronic nose systems.** (Dr. Sanjay Singh), Faculty of Engineering Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

### **Electronics & Communication Engineering**

1. Bathani, Nitinkumar Jivarajbhai. **Design and analysis of electromagnetic wave absorbers based on frequency selective surfaces.** (Dr. Jagdishkumar M Rathod), Department of Electronics & Communication Engineering, Gujarat Technological University, Ahmedabad.

2. Bitra, Surendra Kumar. **Design and analysis of metal insulator metal plasmonic bandpass filters for nanoscale applications.** (Dr. M Sridhar), Department of Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

3. Fernandes, J Bennilo. **Modeling and analysis of deep LSTM networks for Tamil emotional speech recognition.** (Dr. Kasiprasad Mannepalli), Department of Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

4. Kondaveeti, Sivakrishna. **Machine learning based TEC, DCB and ISB error models for multi-global navigation satellite system data.** (Dr. D Venkata Ratnam), Department of Electronics & Communication Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

5. Parija, Sebamai. **Biomedical signal analysis using advanced signal processing and machine learning techniques.** (Dr. Ranjeeta Bisoi and Prof. P K Dash), Department of Electronics & Communication Engineering, Siksha O Anusandhan University, Bhubaneswar.

6. Tellapati, Anuradha Devi. **Design and performance evaluation of cascaded converter fed switched reluctance motor based electric vehicle drive.** (Dr. M Kiran Kumar), Department of Electrical and Electronics Engineering, Koneru Lakshmaiah Education Foundation, Guntur.

#### **Instrumentation Engineering**

1. Gandhi, Shriji Vikrambhai. **Dynamic modelling and control of Green House System (GHS).** (Dr. Manishkumar T Thakker), Department of Instrumentation and Control Engineering, Gujarat Technological University, Ahmedabad.

#### **Mechanical Engineering**

1. Eklarkar, Shripad Vasantao. **Studies on blank holders and drawbead design of complex sheet metal parts.** (Dr. V M Nandedkar), Department of Mechanical Engineering, Swami Ramanand Teerth Marathwada University, Nanded.

2. Thejasree, P. **Numerical and experimental investigation of laser beam welded INCONEL 718 alloy joints.** (Dr. P C Krishnamachary), Department of Mechanical Engineering, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

#### **Structural Engineering**

1. Gupta, Pooja. **Bio-sample imaging with refractive index measurement using common-path low coherence interferometry and Bessel beam.** (Dr. S Mondal), Faculty of Engineering Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

2. Mohine, Shailesh. **Analysis of moving vehicle detection and classification techniques using acoustic signal processing.** (Dr. B S Bansod), Faculty of Engineering Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

3. Mukesh Kumar. **Augmented small wind turbine & NILM based energy monitoring for wind & solar hybrid system.** (Dr. P Harikrishna), Faculty of Engineering Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

4. Parihar, Devendra Singh. **Elephants movement detection in the forest environment using seismic signal decomposition.** (Dr. H.K. Sardana), Faculty of Engineering Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

### **MATHEMATICAL SCIENCES**

#### **Mathematics**

1. Raut, Dnyaneshwar Kundlik. **Study of fractal Friedmann-Robertson- Walker Cosmological models.**

(Dr. D D Pawar), Department of Mathematics, Swami Ramanand Teerth Marathwada University, Nanded.

#### **Statistics**

1. Sajwan, Sunita. **A study of life table techniques through disability-free life expectancy in India with applications.** (Dr. R Singh), Department of Statistics, North Eastern Hill University, Shillong.

### **MEDICAL SCIENCES**

#### **Medicine**

1. Devan, Kanitha. **Assessment of knowledge and experience of workplace incivility and its impact among the staff nurses at identified different hospitals in Bengaluru.** (Dr. Poonam R Naik and Dr. Prasanthi Nattala), Department of Community Medicine, Yenepoya (Deemed to be University), Mangaluru.

#### **Pharmaceutical Science**

1. Gopi, G. **Design development and characterization of nicardipine HCL nano particular formulations.** (Dr. B Kumar and Dr. K B Chandra Sekhar), Department of Pharmaceutical Science, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

2. Radhika, C. **Pharmacological evaluation of *Amaranthus Roxburghianus* and *Bombax Ceiba* for their anti $\theta$  rheumatoid activity in albino wistar rats.** (Dr. K Saravanakumar and Dr. K B Chandra Sekhar), Department of Pharmaceutical Science, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

3. Sonvane, Sameep Madhukarrao. **Design and development of some novel molecules targeted for neuropathic pain.** (Dr. O G Bhusnure), Department of Pharmacy, Swami Ramanand Teerth Marathwada University, Nanded.

4. Shaikh, Nasheer Shadulla. **Formulation, development and evaluation of nanosponges for topical application.** (Dr. Shivappa N Nagoba), Department of Pharmacy, Swami Ramanand Teerth Marathwada University, Nanded.

5. Shiv Kumar. **Development and evaluation of polyherbal formulation for the management of chronic disorders.** (Dr. O G Bhusnure), Department of Pharmacy, Swami Ramanand Teerth Marathwada University, Nanded.

6. Sindhu Priya, E S. **Preclinical studies of pyrazole derivatives for their neuroprotective action against cerebral ischemia- reperfusion injury.** (Dr. Roopa P Nayak and Dr. Prema Saldanha), Faculty of Pharmacy, Yenepoya (Deemed to be University), Mangaluru.

7. Swapna, Gunapati. **Development of evaluation of sublingual pharmaceutical dosage form of anti-hypertensive drugs.** (Dr. K Bhaskar Reddy and Dr. K Sesha Maheswaramma), Faculty of Pharmaceutical Sciences, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

8. Wadulkar, Raghunath Dhondiram. **Design and evaluation of Gut flora targeting prophylaxis for chronic disease.** (Dr. O G Bhusnure), Department of Pharmacy, Swami Ramanand Teerth Marathwada University, Nanded.

## PHYSICAL SCIENCES

### Biotechnology

1. Murthy, Sushma S. **Screening for potential phytochemicals against hepatocellular carcinoma in HepG2 cell lines by in silico and in vitro approaches.** (Dr. T Bala Narsaiah), Faculty of Biotechnology, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

### Chemistry

1. Dash, Kalyani. **Polyurethane/polyaniline conductive blends and nano composites: Fabrication and application perspectives.** (Dr. Bibhu Prasad Sahoo), Department of Chemistry, Kalinga Institute of Industrial Technology, Bhubaneswar.

2. Gaikwad, Rajendra Shrirang. **Synthesis and characterization of metal oxides for supercapacitor application.** (Dr. S B Patwari), Department of Chemistry, Swami Ramanand Teerth Marathwada University, Nanded.

3. Goswami, Ranadip. **Strategically devised multiresponsive porous materials for environmental remediation with mechanistic insights.** (Dr. Subhadip Neogi), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

4. Gurmeet Singh. **Nano-materials synthesis for hydrogenation of furfural to value added products.** (Dr. Ankur Bordoloi), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

5. Krishnamoorthy, K. **Electrocatalytic determination of biologically and environmentally significant compounds using novel sensor platforms.** (Dr. R Thangamuthu), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

6. Makwana, Ketankumar Ishwarbhai. **Cashew Nut Shell Liquid (CNSL): A versatile building block towards synthesis of novel monomers, polymers and surfactants.** (Dr. Manohar V Badiger), Faculty of

Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

7. Mondal, Rakhi. **Blend and copolymers based ion exchange membranes and their electrochemical separation performance.** (Dr. Uma Chatterjee), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

8. Moorthy, Manchuri Krishna. **Method, development, validation identification and quantification of genotoxic impurities in three pharmaceutical drugs using LC-MS/MS technique.** (Dr. G V Subba Reddy), Department of Chemistry, Jawaharlal Nehru Technological University Anantapur, Ananthapuramu.

9. Nuthakki, Vijay Kumar. **Discovery of natural product based multi-targeted anti-Alzheimer agents.** (Sandip B Bharate), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

10. Mali, Bhupendra Pralhad. **Tuning fluorescence in crystalline state through polymorphs and cocrystals development: Synthesis, structural studies and photophysical properties measurements of green.** (Dr. Rajesh Ghanshyam Gonnade), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

11. Ramaprakash, M. **Electrodeposition of Ni-W based materials and its applications.** (Dr. N. Rajasekaran), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

12. Rinky. **Discovery of new multi-targeted preclinical leads for Alzheimer's disease employing library screening and rational drug design approaches.** (Dr. Sandip B Bharate), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

13. Saha, Ekata. **Triazole based small molecule metallo-organogels and their applications.** (Dr. Joyee Mitra), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

14. Sarkar, Chitra. **Design of porous organic catalytic nanoarchitecture for biomass valorisation.** (Dr. John Mondal), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

15. Sebastian, Anila. **Density functional theory studies on transition metal fulleride complexes and CO<sub>2</sub> capture by anions, fullerides, and N-rich molecular systems.** (Dr. Suresh C H), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

16. Semwal, Rashmi. **Carbon-hetero bond formations through inter and intra functionalisation of fused heterocycles.** (Dr. Adimurthy Subbarayappa), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

17. Sharma, Dipesh Mamraj. **Synthesis and implication of 3d transition metal catalysts for the hydrogenative transformations of alkynes, chalcones and nitriles.** (Dr. Benudhar Punji), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

18. Sharma, Neha. **Theoretical and experimental studies on cycloaliphatic ester for their application as lubricants.** (Dr. Anjan Ray), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

19. Sharma, Prerana. **Stable and functionalized polymeric materials/membranes for water purification and energy applications.** (Dr. Vinod Kumar Shahi), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

20. Soda, Anil Kumar. **Novel strategies towards the synthesis of functionalized quinazolines and quinolones of biological interest.** (Dr. Sridhar Madabhushi), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

21. Sumit Kumar. **Exploration of quasi 2-dimensional electron gas at LaScO<sub>3</sub>/SrTiO<sub>3</sub> & CaTa<sub>2</sub>O<sub>6</sub>/SrTiO<sub>3</sub> interface.** (Dr. Anjana Dogra),

Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

22. Vhanale, Bhagwat Tukaram. **Synthesis, characterization and biological evaluation of metal complexes derived from schiff bases.** (Dr. A T Shinde), Department of Chemistry, Swami Ramanand Teerth Marathwada University, Nanded.

23. Vishnuvardanreddy, Aedula. **Synthesis of greensporone F, dechlorogreensporone F, (2E)-macrolactin 3 and 2-allyl-2-methyl-2H-chromenes.** (D.K.Mohapatra), Faculty of Chemical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

24. Wagh, Shaila Sahebrao. **Studies on synthesis and biological evaluation of some transition metal complexes.** (Dr. B R Patil), Department of Chemistry, Swami Ramanand Teerth Marathwada University, Nanded.

## Physics

1. Bevara, Padmavathi. **Assessment of external and internal forcing on Indian temperature variability: Implications on total water storage changes.** (Dr. Virendra Mani Tiwari), Faculty of Physical Sciences, Academy of Scientific and Innovative Research, Ghaziabad.

2. Bhargav, Sureshkumar Rajyaguru. **Functional oxide based interfaces for spintronic applications.** (Dr. Nikesh A Shah), Department of Physics, Saurashtra University, Rajkot. □



Shikshan Prasarak Sanstha, Kavathe Mahankal  
**Padmabhushan Vasantraodada Patil Mahavidyalaya**  
 Kavathe Mahankal, Tal. Kavathe Mahankal,  
 Dist. Sangli – 416 405  
 (Affiliated to Shivaji University, Kolhapur)  
**(Permanently Granted)**

**WANTED**

Applications are invited from eligible candidates for the following posts:

Sr. No.	Name of Post / Subject	Subject wise Vacant posts	Total Number of Vacant Posts	Total Reservation
<b>A) Principal</b>				
1	Principal	1	01	Open - 1
<b>B) Assistant Professor</b>				
1	English	2	13	ST - 2, VJ(A) - 1, NT(C) - 1, OBC - 4, EWS - 1, Open - 4
2	Marathi	2		
3	History	1		
4	Economics	1		
5	Geography	1		
6	Sociology	1		
7	Commerce	2		
8	Chemistry	2		
9	Zoology	1		

**Note :** For detailed information about post, qualifications and other terms and conditions, please visit University **website : [www.unishivaji.ac.in](http://www.unishivaji.ac.in)**.

Place : Kavathe Mahankal  
 Date : 14/2/2023

President,  
 Shikshan Prasarak Sanstha,  
 Kavathe Mahankal



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**REQUIRES**

**COLLEGE PRINCIPAL AND PROFESSOR**

**Requisites for the position:**  
*in keeping with Statute SC - 16 of Goa University*

- ▶ Ph.D. degree
- ▶ A Professor/Associate Professor with a total service/experience of at least fifteen years of teaching/research in Universities, Colleges and other institutions of higher education.
- ▶ A minimum of 10 research publications in peer reviewed journals as approved by Goa University from time to time or UGC-listed journals out of which at least two should be in Scopus/Web of Science Journal.
- ▶ A minimum Research score of 110.
- ▶ Knowledge of Konkani is essential.
- ▶ Minimum 15 years of residence in Goa

Applications with a detailed resume may please be sent to [principal@gchce.com](mailto:principal@gchce.com)  
 In addition hard copies of the resume, 2 recent passport size photographs, copies of certificates and mark sheets, should be sent in an envelope super scribed with the post applied for, within 20 days from the date of this advertisement to:

Goa College of Hospitality and Culinary Education, Taj - Cidade de Goa,  
 Vainguinim Beach, Dona Paula Goa 403 004.

Tel: 0832 2454560

Website: [www.goahospitalitycollege.com](http://www.goahospitalitycollege.com)

Sant Dnyaneshwar Shikshan Sanstha's  
**Annasaheb Dange College of B Pharmacy, Ashta**  
 Tal. Walwa, Dist. Sangli - 416301 (Maharashtra)  
 (Affiliated to Shivaji University, Kolhapur)  
 (Permanently Non-Granted)

**WANTED**

Applications are invited from eligible candidates for the following posts:-

Sr. No.	Name of Posts	Vacant Posts	Open Posts	Reserved Posts
<b>A Professor</b>				
1	Pharmaceutical Chemistry	01	01	--
2	Pharmaceutics	01	01	--
<b>B Associate Professor</b>				
1	Pharmaceutical Chemistry	01	01	--
2	Pharmaceutical Analysis	01	01	--
3	Pharmaceutics	02	01	1- SC
4	Pharmacology	01	01	--
5	Pharmacognosy	01	01	--
<b>C Assistant Professor</b>				
1	Pharmaceutical Chemistry	05	02	1-SC, 1-VJA, 1-OBC
2	Pharmaceutical Analysis	02	01	1-SC
3	Pharmaceutics	05	01	1-SC, 1-VJA, 1-OBC, 1-EWS
4	Pharmacology	03	01	1-SC, 1-VJA
5	Pharmacognosy	02	01	1-SC
<b>D Librarian</b>				
		01	01	--

**Note:** For detailed information about posts, qualifications and other terms & conditions, please visit University **website: [www.unishivaji.ac.in](http://www.unishivaji.ac.in)**.

**Place:** Ashta  
**Date:**

Principal  
 Annasaheb Dange College of  
 B Pharmacy, Ashta

Secretary  
 Sant Dnyaneshwar Shikshan Sanstha,  
 Islampur

**SREE NARAYANA MANGALAM COLLEGE**  
 (Affiliated to Mahatma Gandhi University, Kottayam)  
**Maliankara P.O, Moothakunnam, North Paravur,**  
**Ernakulam District, Kerala - Pin 683516**

**Phone: 0484 2482497, 0484 2482386, Mob:9446218567**

**WANTED**

Applications are invited from fully qualified candidates for the following permanent posts:-

Posts	Number of Posts
Physics, Assistant Professor - Open Merit	1
Librarian (UGC)	1

Age and qualification of the candidates as per University/UGC/Government norms. Application forms for the above-mentioned posts can be had from the undersigned on payment of Rs.1000/- directly or Rs.1050/-by post. Duly filled in application with self-attested copies of mark lists and other certificates should reach the Manager **within 30 days** from the date of publication of this advertisement. The appointment will be subject to approval by Government.

Maliankara  
 14.02.2023

Sd/-  
 Manager

## TITUS II TEACHERS COLLEGE

(Re-Accredited with 'A' Grade by NAAC)

TIRUVALLA, PATHANAMTHITTA,

KERALA - 689101

PH: 0469 2601383

e-mail : tituscollege@gmail.com

Applications invited for the vacancy of  
**ASSISTANT PROFESSOR IN PHYSICAL  
SCIENCE (RESERVED FOR PWD-BLIND)**  
- **One Post (Open Quota)**

Age and qualification shall be as per UGC/ NCTE/Government of Kerala/ Mahatma Gandhi University, Kottayam norms. The vacancy is reserved for persons with benchmark disabilities (Blind) as mentioned in Clause 34 of the Rights of Persons with Disability Act, 2016 and G.O(MS) No. 242/2022/H. Edn. dated, 18.05.2022 & U.O. 20586/AC B1-2/2022/ ACAD dated 27.09.2022.

Apply **within 30 days** of publication of this notification. Application form can be obtained from the College Office on payment of Rs.1000/- or Rs.1100/-by post).

Manager



**Kala Academy Goa's College of Theatre Arts**  
(A Grant-in-Aid institution affiliated  
to Goa University)

Old Secretariat Complex (Adil Shah Palace)

Panaji, Goa-403001 • Tel.: 0832-2420451/52/53

C/o. Rajiv Gandhi Kala Mandir, Ponda – Goa 403401

Ph: 0832 -2312147

Email: collegeoftheatrearts.ka@gmail.com

### APPOINTMENT

Applications are invited for the following full time regular posts of Assistant Professors for B.P.A. (Theatre) programme.

Sr. No.	Subject	No. of Posts	Category
1	Acting & Direction	01	General
2	Stage Craft Techniques & Production	01	OBC
3	Dramatic Literature	01	General

#### Minimum Qualifications

- As per Goa University statutes clause 16.4.3 Drama Discipline Mandatory Requirements
- Certificate of 15 years Residence in Goa.
- Knowledge of Konkani is essential & knowledge of Marathi is desirable Visit College **Website (www.kagcta.ac.in)** for detailed notification. Applications need to reach the Principal, Kala Academy Goa's College of Theatre Arts, C/o. Rajiv Gandhi Kala Mandir, Ponda – Goa 403401 **within 15 days** from the date of publication of this advertisement.

Date: 13/02/2023

Sd/-  
Off. Principal

### WANTED

A.S.S.P. Mandal's Maharaj J.P.Valvi. Arts, Commerce & Shri. V.K. Kulkarni Science College, Dhadgaon, Tal. Akrani, Dist. Nandurbar (M.S.) 425414 inviting application for the granted post of **Assistant Professors**.

Sr. No.	Designation	Subject	No. of post	Category
1	Asst. Professor	Geography	1	S.T.-01,
2	Asst. Professor	Botany	1	N.T.B.-01,
3	Asst. Professor	Chemistry	1	O.B.C.-02,
4	Asst. Professor	Commerce	2	E.W.S.-01

Applications giving full details about educational qualifications, experience etc. Alongwith the documents should reach at the address of the **President/Principal A.S.S.P. Mandal's Maharaj J.P.Valvi. Arts, Commerce & Shri. V.K. Kulkarni Science College, Dhadgaon, Tal. Akrani, Dist. Nandurbar (Maharashtra) 425 414, within 15 days** of the publication of the advertisement for more information visit [www.nmu.ac.in](http://www.nmu.ac.in).

**Note :** The appointment will be on the basis of final decision of Hon'ble High Court Aurangabad Bench of Writ Petition No. 12051/2015.

**Hemant Bhika Valvi**  
President  
A.S.S.P. M. Dhadgaon,  
Tal. Akrani, Dist. Nandurbar

**Pratishthan Shikshan Prasark Mandal's**  
**Pratishthan Mahavidyalaya Paithan,**  
Tal. Paithan, Dist. Aurangabad (Maharashtra) - 431107  
**NAAC Reaccredited 'B' Grade**  
Affiliated to Dr. Babasaheb Ambedkar Marathwada  
University, Aurangabad

### WANTED

Applications are invited from the eligible candidates for the following full time granted posts of Principal and Assistant Professors in our senior college. Qualified candidates should send their applications to the **President/Secretary, Pratishthan Shikshan Prasark Mandal's, Pratishthan Mahavidyalaya Paithan, Tal. Paithan Dist. Aurangabad 431107 within 15 days** from the date of publication of this advertisement.

Sr. No.	Name of the Post	Subject	No. of Posts	Reservation
1	Principal	--	1	Open
2	Assistant Professor	History	1	Open-01,
3	Assistant Professor	Chemistry	1	OBC-01

Permission as per NOC No.: JDHE Aurangabad/NOC/2019/10 Dated 31-01-2023.

#### Educational Qualification and Pay Scale:

- Educational qualification, pay scale service conditions and recruitment for the above posts are as per the norms of UGC, Govt. of Maharashtra and Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.
- Reserved candidates should send one copy of application to the Deputy Registrar Special Cell, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.
- Eligible candidates who are already in service should submit their applications through proper channel.
- All attested xerox copies of certificates and other relevant documents should be attached with the application.
- No T. A. and D. A. will be paid to the candidates.

**Shri Ravindra Patil Shisode**  
President

**Shri Rajendra Patil Shisode**  
Secretary

**Junnar Taluka Shivner Shikshan Prasarak  
Mandal, Junnar  
Shri Shiv Chhatrapati College, Junnar,  
Dist. Pune (410502)**  
(Affiliated to Savitribai Phule Pune University, Pune)  
Website : [www.sccollegejunnar.org](http://www.sccollegejunnar.org)

**WANTED**

Applications are invited from eligible candidates for the following Grantable posts:-

Sr. No.	Post	No. of Posts	Category
1	Principal	01	Open to All
2	Assistant Professor (Senior College) Subject- Economics	01	Open to All

**Note:** For detailed information about post, qualification and other Terms and Conditions, please visit College Website: [www.sccollegejunnar.org](http://www.sccollegejunnar.org)

Hon. Adv. Sanjay Kale      Hon. Dattatray Thorat  
President                              Secretary  
Junnar Taluka Shivner Shikshan Prasarak Mandal, Junnar

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**Mob: 09818621761**

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**Kalyan Wholesale Merchants' Education Society's  
LAXMAN DEVRAM SONAWANE COLLEGE OF ARTS & COMMERCE**  
Opp. Fire Station, Near Durgadi Killa, Murbad Road, Kalyan (W), Dist. Thane

**MINORITY**

APPLICATIONS ARE INVITED FOR THE POST OF

**PRINCIPAL**

FROM THE ACADEMIC YEAR 2022-23

**UN-AIDED**

The above post is open to all, however, candidates from any category can apply for the post.

Reservation for women will be as per **University Circular No. BCC/16/74/1998 dated 10<sup>th</sup> March, 1998. 4% reservation shall be for the persons with disability as per University Circular No. Special Cell/ICC/2019-20/05 dated 05<sup>th</sup> July, 2019.**

Candidates having knowledge of Marathi will be preferred.

**“Qualification, Pay Scales and other requirement are as prescribed by the UGC Notification dated 18<sup>th</sup> July, 2018, Government of Maharashtra Resolution No. Misc-2018/C.R.56/18/UNI-1 dated 8<sup>th</sup> March, 2019 and University Circular No. TAAS/(CT)/ICD/2018-19/1241 dated 26<sup>th</sup> March, 2019 and revised from time to time”.**

**The Government Resolution & Circular are available on the website : [mu.ac.in](http://mu.ac.in).**

Applicants who are already employed must send their application through proper channel. Applicants are required to account for breaks, if any, in their academic career.

Applications with full details should reach to the **GENERAL SECRETARY, LAXMAN DEVRAM SONAWANE COLLEGE OF ARTS & COMMERCE, Opp. Fire Station, Near Durgadi Killa, Murbad Road, Kalyan(W), Dist. Thane within 15 days from the date of publication of this advertisement. This is University approved advertisement.**

Sd/-  
General Secretary

## Navgan Shikshan Sanstha, Rajuri (N.), Tq. & Dist. Beed

### WANTED

Applications are invited for the post of **Principal** with duly attested Xerox copies of requisite documents for below mentioned posts **within 15 days** from the date of publication of this advertisement.

Sr. No.	Name of the Post	Name of the College	Number of the post/Subject	Reservation	Status of Grant	Remark
1.	<b>Principal</b>	1) Mrs. Kesharbai Sonajirao Kshirsagar Alias Kaku Arts, Science & Commerce College, Beed 2) Bachelor of Physical Education College, Beed	02	<b>VJ-A - 01</b> <b>OBC - 01</b>	Grant-in-Aid	Posts are approved by Joint Director subject to the final decision in the Writ Petition No. 12051/2015.

Permission as per NOC No. JDHE Aurangabad/NOC/2019/11 on dated 02/02/2023.

Details regarding educational qualification, research publication, API score based on PBAS, experience, tenure, pay scale etc. are as per the norms specified by University Grants Commission, State Government of Maharashtra, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad (M.S.) from time to time.

The candidate of reserved category should submit one copy of their application to the Assistant Registrar, (Special Cell), Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.

**Note :-** No T.A., D.A. will be paid for attending interview.

**Address for the correspondence: -**

To,  
The Secretary,  
Navgan Shikshan Sanstha, Rajuri (N.)  
C/o S. K. H. Medical College Campus,  
Shivaji Nagar, Beed -431122 (Maharashtra)

Place : Beed  
Date : 09/02/2023

**SECRETARY**  
Navgan Shikshan Sanstha,  
Rajuri (N.), Tq. & Dist. Beed

### WANTED

Applications are invited from the eligible candidates for the following posts in **Santshreshth Namdev Maharaj Pathade Arts & Science College, Hingoli (Permanent Non Grant) run by Adivasi Bahuuddeshiya Gram Vikas Pratishthan Sanstha's, Sirsam (Bk.), Tq. & Dist. Hingoli**. The application dully completed in all respects should reach on the following address given below **with in fifteen days** from the advt. published. The candidates of reserved category should submit one copy of application to the Dy. Registrar, Special Cell, S.R.T.M.U. Nanded.

Sr. No.	Subject	Post	No. of Posts	Category
1	English	Asst. Professor	02	Open - 07 SC- 02 ST - 01 VJ (A) - 01 NT (C) - 01 NT (B) - 01 OBC - 04 EWS - 02
2	Marathi	Asst. Professor	02	
3	Hindi	Asst. Professor	02	
4	Political Science	Asst. Professor	01	
5	Public Administration	Asst. Professor	01	
6	Psychology	Asst. Professor	02	
7	Chemistry	Asst. Professor	02	
8	Zoology	Asst. Professor	02	
9	Botany	Asst. Professor	02	
10	Physics	Asst. Professor	01	
11	Librarian	Librarian	01	
12	Physical Education	Director of Physical Education	01	

**Note :** Qualification, Salary and Allowances as per UGC; State Government and S.R.T.M.U, Nanded rules from time to time which is given on Website : [www.srtmun.ac.in](http://www.srtmun.ac.in).

**Address for Correspondence:**

The Principal, Santshreshth Namdev Maharaj Pathade Art's and Science College, Ramakrishna Nagar, Balsond, Tq. & Dist. Hingoli - 431513(Maharashtra).

**Fabtech Education Society's**  
**Fabtech Technical Campus, College of Engineering & Research**  
 Pandharpur Road, Gate No. 565/1, Sangola, Solapur Maharashtra- 413307  
**(Permanent Non-Grantable)**

Website: [www.fabtecheducation.com](http://www.fabtecheducation.com) and Contact Number : 8408888657  
 Email: [fabtech@ftccoe.ac.in](mailto:fabtech@ftccoe.ac.in)

Affiliated to Dr. Babasaheb Ambedkar Technological University, Lonere- 402 103

**RECRUITMENT**

Applications are invited from eligible candidates for the following Permanent Non grantable positions:

B. Tech Engineering				
Sr. No	Subject/ Department	Professor	Associate Professor	Assistant Professor
1	Civil Engineering.	01	02	03
2	Computer Science & Engineering.	01	02	06
3	Electrical Engineering.	01	02	05
4	Artificial Intelligence and Data Science	01	02	06
5	Mechanical Engineering.	01	03	03
6	Communication Skill	-	-	02
7	Engineering Physics	-	-	01
8	Engineering Mathematics	-	-	01
9	Engineering Chemistry	-	-	02
10	Librarian			01
11	Physical Director			01
	<b>Total</b>	<b>5</b>	<b>11</b>	<b>31</b>

M. Tech Engineering				
Sr. No	Subject/ Department	Professor	Associate Professor	Assistant Professor
1	Electrical Engineering	00	01	01
2	Mechanical Engineering	00	01	01
	<b>Total</b>	<b>00</b>	<b>02</b>	<b>02</b>

The reservations for the above posts are as follows:

UG												
Sr. No.	Designation	No. of Post	SC	ST	VJ	NT-B	NT-C	NT-D	SBC	EWS	OBC	OPEN
1	Professors	05	01		01				01		02	
2	Associate Professors	11	02	01	01				01	02	04	
3	Assistant Professors	29	04	02	01	01	01	01	00	03	05	11
4	Librarian	01	-	-	-	-	-	-	-	-	-	01
5	Physical Director	01	-	-	-	-	-	-	-	-	-	01
	<b>Total</b>	<b>47</b>										

PG												
Sr. No.	Designation	No. of Post	SC	ST	VJ	NT-B	NT-C	NT-D	SBC	EWS	OBC	OPEN
1	Associate Professors	02					01				01	
2	Assistant Professors	02					01				01	
	<b>Total</b>	<b>04</b>					<b>02</b>				<b>02</b>	

**Conditions:**

- 1) Educational Qualifications, Experience, Pay Scales etc. applicable for the post is as per the norms specified by AICTE/PCI/COA, Govt. of Maharashtra & Dr. Babasaheb Ambedkar Technological University, Lonere, Dist. Raigad & as modified from time to time.
- 2) Those who are in service should apply through proper channel.
- 3) Application received after the last date will not be considered. The College will not be responsible for any delay including postal delay, if any.
- 4) Incomplete applications or applications without the attested copies of supporting documents will not be entertained.
- 5) No T.A., D.A. will be paid for attending the interview.
- 6) The applications giving full particulars and attested copies of all the supporting documents should reach to the undersigned **within 21 days** from the date of publication of this advertisement.

Place:

Date:

**President**  
**Fabtech Education Society,**  
**Sangola**

Recipient of the International Award for Institutional Excellence from Commonwealth of Learning twice  
'Swachh Campus Ranking 2019' awarded by Ministry of Human Resource Development, New Delhi



**YASHWANTRAO CHAVAN MAHARASHTRA OPEN UNIVERSITY**  
(NAAC Accredited 'A' Grade)



## SEARCH-CUM-SELECTION COMMITTEE INVITES APPLICATIONS FOR THE POST OF VICE-CHANCELLOR

The Yashwantrao Chavan Maharashtra Open University (YCMOU) was established on 1<sup>st</sup> July 1989 by the Act No. XX (1989) of Maharashtra State Legislature. The headquarter of the University is located at Nashik. The University campus is aptly named as 'Dnyangangotri' (River of Knowledge). It is the Fifth Open University in the country. The jurisdiction of this university covers the entire State of Maharashtra. The University offers higher education at affordable costs to large segments of the population without barriers of age, entry qualification, place, and pace of study and leveraging interaction by offering seamless teaching-learning experiences. YCMOU is a self-financed University functioning under the Department of Higher & Technical Education, Government of Maharashtra, and is recognized under Section 12 (B) from the UGC, New Delhi.

The Chancellor, Hon'ble Governor of Maharashtra has formed a four member search-cum-selection committee as per Yashwantrao Chavan Maharashtra Open University (YCMOU) Act for recommending suitable names for the post of Vice-Chancellor. The search-cum-selection committee invites nominations/applications from eminent academicians who fulfil the qualifications and experience prescribed for the post of Vice-Chancellor. Necessary details regarding essential qualifications and application format are available on the University website [www.ycmou.ac.in](http://www.ycmou.ac.in)

The interested candidates/applicants must provide detailed chronological resume in the format available on the University website. Additionally, they should provide a two page write up about their suitability for the post, two page write up about their vision for the University and name and contact details of three referees (distinguished individuals well acquainted with the work of applicant) along with reference letters. Universities/ Institutions may also nominate suitable candidates for this post.

Four hard copies (application form and proof of qualification and experience) as well as a soft copy (via email) of the nominations/applications may be sent in the prescribed format to the Nodal Officer of the search-cum-selection committee at the address mentioned below so as to reach him on or before **13<sup>th</sup> March 2023**. Any communication regarding the process and any matter connected to the selection of Vice-Chancellor shall be made only with the Nodal Officer. The candidates shall not send any mail to the Chairman or Members of the search-cum-selection committee directly. Applications received after the last date shall not be entertained.

<b>Name of the Nodal Officer</b>	Dr. Sudhir Singh, Associate Professor, Dyal Singh College, New Delhi
<b>Address</b>	Department of Political Science, Dyal Singh College University of Delhi, Lodhi Road, New Delhi - 110 003
<b>Email</b>	sudheer162000@gmail.com
<b>Contact No</b>	9810947348

Short-listed candidates may be invited for personal interaction with the search-cum-selection committee. However, mere fulfilling the minimum requirements does not give the right to the candidate to be invited for interaction.

**Date :** 10<sup>th</sup> February 2023

**CHAIRMAN**  
**SEARCH-CUM-SELECTION COMMITTEE**

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# Association of Indian Universities

&



Dr. Babasaheb Ambedkar Marathwada  
University, Aurangabad

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