National Education Policy 2020

Ministry of Education
Government of India

Government of India

Guidelines forInnovative PedagogicalApproaches& Evaluation Reforms

University Grants Commission
New Delhi, India

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1. Preamble:

The traditional Indian teaching-learning system has been driven by *Guru-Shishya parampara.*Itisa holistic systemwhich provided comprehensive knowledge, value-based learning aswell as requisite life skills suited to the learners. Diverse pedagogies have been used

forachievingcoreobjectivesoftheentirelearningprocesses,whichincludedexposuretoreallifeexperiencesandhandsonlearning,value-basedlearningthroughstories/narrations,problem-solving

through explorations, role plays, memorization and dissemination throughdebatesand discussions.

In the past few decades, various policy frameworks have been developed to address theevolving needs of different pedagogical approaches in higher education. The recent NationalEducationPolicy2020(NEP)istheoutcomeofmammothexercisetointegrateIndiantraditionalvalue-basededucationwiththepresenttechnologydominatedteachingandlearning process. It aims to overhaul the existing education system through a multiprongedapproach, one of which is developing a pedagogy that makes education more experiential,holistic,integrated,inquiry-driven,discovery-oriented,learner-centred,discussion-based,flexibleandenjoyable.AstheNEP2020strivestodevelopwell-rounded,competentindividuals with 21st-century skills, the curricula and pedagogies have to be reoriented andrevamped for the same, which includes raising the standard of curricula and using appropriatepedagogiesto delivereffectivelyto thelearners.

The NEP 2020, in its Para's, namely, Para 4.4, Para 9.3 (d), Para 11.6, Para 12.1, Para 12.2andPara12.6,envisionsinnovativepedagogicalapproachesandtheirroleinhighereducation. The policy emphasises the holistic development of the learners, which requiresusinginnovativepedagogicalapproachessuchasexperientiallearning,cuttingedgepedagogy,art integrated learning, flippedclassroom etc.

The NEP 2020 is learner centric in its approach, and teachers play a pivotal role in itsimplementation. The policy gives teachers more autonomy in choosing aspects of pedagogysothatthey may planteaching-learning inthemannerthey findmosteffectiveforthestudentsintheirclassrooms.However,themeaningfulexerciseofthisautonomyandflexibilitydependson the teacher'sunderstandingofthedifferentpedagogical approaches.

Pedagogical practices determine the learning experiences arranged for the learners, thus directly influencing their learning outcomes. Therefore, the use of relevant pedagogy is necessary to achieve the objectives of the curricula successfully. Such pedagogy has to have an increased emphasis on an inclusive approach to communication, discussion, debate, research, and cross-disciplinary and interdisciplinary thinking opportunities. Teachers should be provided with requisite training on pedagogical approaches for capacity building to achieve the desired learning outcomes for students. Such aspects of training on pedagogy must focus on the following:

- Addressing the different learning needs of students within a classroom and institutions- needs of differently-abled students.
- The difference in the learning styles (visual, auditory and kinaesthetic learning styles) of students.
- Diversity of the background of students in terms of the discipline of study, the social, economic, cultural and educational background.
- The difference in the pace of learning.

Adopting an inclusive approach: The NEP 2020 focuses on providing accessible, inclusive and equitable education. The pedagogy used in a classroom must reflect the inclusive approach so that learners can relate what is taught in the class with the multiple perceptions and realities they experience.

Embracing Multi-disciplinarity: Singularity in terms of acquiring knowledge in a particular discipline lacks the understanding of the complexity and interplay of various factors in the causation as well as finding a durable solution to a problem. Therefore, NEP 2020 promotes multi-disciplinarity. Accordingly, there is a need to change the pedagogical approach to instil in the students the multidisciplinary approach for understanding the core concepts, identifying and formulating problems, and exploring possible solutions.

Learning mode centric pedagogy: The key modes of learning, viz. physical or offline, online, hybrid or blended modes, and flipped classroom necessitate varying pedagogies suited to the channel/s of communication characteristic to each mode of learning. Therefore, appropriate pedagogy needs to be devised and adopted accordingly to avoid gaps in the teaching and learning process through these modes.

Learning method based pedagogy: There are multiple methods of learning which can be usedbased on the desired learning outcomes or degrees of active participation of learners in theteaching-learning process both within and outside the classroom. For instance, if the learningoutcomeissensitizationaboutareal-timeproblem,thenitisessentialtoincorporatefieldwork with an observational study or survey in addition to the theoretical groundingrequired.Iftheaimistoprovidehands-onorexperientiallearning,itisimportanttoincorporate field-based, example-based, or project-based learning as pedagogy. Further, whenthe active engagement of learners in the learning process is desired, the use of collaborativeand cooperative learning strategies, such as group discussion, brainstorming, role plays, case-studies, and self-learning methods supporting flipped classroom pedagogy are the importantteaching-learning methods to encourage articulation, demonstrate new understandings of thecontent and apply it in solving problems. Flipped classroom pedagogy involves self or peerstudy by students before class to develop an understanding of the learning material providedby the teacher and thereafter engage in debate, discussion, analysis among students guided bytheteacherduringtheclasstime.Itisoneoftheimportantpedagogiestoencouragearticulation,demonstrate newunderstandingsofthecontentandapplyitinsolvingproblems.

Eachlearningmethodmayhaveanappropriatepedagogyfordeliveringtothelearnerswhatistobelearnt.Thus,determiningtheappropriatepedagogyforachosenlearningmethodisanessential step toward effectiveteaching-learning.

Given the significance of pedagogy and the different aspects of it which are to be taken intoconsideration, there is a need to formulate guidelines for innovative pedagogical approachestakingcareof thefollowingobjectives:

- Pedagogicalapproachesfordifferentlearningneedsofstudents
- Pedagogicalapproachesfordifferentmodesofteaching-learningsuchasphysical,blendedand online
- Pedagogicalapproachesfordifferentdisciplines,multiandinter-disciplinaryapproaches
- Evaluation&AssessmentcorrespondingtodefinedLearningOutcomesrequiringspecificpedagogical strategies

- Pedagogicalapproachesenablingcollaboration,cooperation,creationandco-creationamonglearners
- Capacitybuildingofteacherswithrespecttopedagogicalapproaches
- Anyothermeasurestoachieverecommendationsof NEP 2020withrespecttopedagogicalapproaches

These guidelines aim to suggest innovative pedagogies and develop the linkage of GraduateAttributes, as listed in National Higher Education Qualifications Framework (NHEQF), withlearning needs and pedagogical approaches to better serve towards achieving the NEP 2020vision.

2. PedagogyandItsimportance:

Pedagogy is an art of sharing knowledge which is dynamic in nature and may vary fromteacher to teacher, classroom to classroom, institution to institution and platform to platform.Themost critical factor in pedagogyis theconstructivism.

Aneffectivepedagogicalapproachmaytouchuponthefollowing:

- Pedagogies are constantly evolving processes; every pedagogy is different andmaybe modified as per 21stCenturylearning.
- Pedagogy must fit the targeted audience and focus on helping students todevelop an understanding of the knowledge delivered and relate with real lifescenarios.
- Toproviderichclassroomexperiences,varioustoolsormethodsmaybeintegratedto enhancelevel ofinteraction anddiscussion withinthe class.
- Differentassessmenttoolsneedtobeexploredforhigherandinclusiveproductivity of the learners. Integrating ICT into assessment and evaluationprocessesmayprovideself-assessment opportunityto learners.

3. InnovativePedagogicalApproaches:

The adjectival word ‗innovative' connotes featuring new methods that are advanced andoriginal; and in the context of ‗innovative pedagogical approaches', it may be understood tobethosepedagogicalapproacheswhichinvolveusageofappropriatemeans(tools)andmethods (ways) in a new and creative ways and in varied combinations in order to make theteaching-learningprocessmoreeffectivebyenablingthelearnerstoattainthe

expected/definedlearningoutcomes,developstudents'capabilitiesinproblem-solving,teamwork, learning to learn, reflective thinking etc. to be creative, adapt to changes, manageandanalyzeinformation,and work with knowledge.

Innovativepedagogicalapproachespositivelyimpactstudentlearning,behaviourandattitudes and are capable of ensuring that all students achieve the defined course/programmelearning outcomes and demonstrate the expected graduate attributes. Para 13.4 of NEP 2020recognises flexibility for teachers to adopt innovative pedagogies to ensure a motivated andcreativeteacher.

Therearefourbroadcategoriesofpedagogicalapproaches,namely-
Behaviourism,Constructivism,Social Constructivism, andLiberationist.

(i) Behaviourism:
Thetheoryofbehaviourisminformsitsapproachtowardteacher-
centredlearning.Itadvocatestheuseofdirectinstructionandlecture-
basedlessonswhereintheteacheristhesole authority to lead the lesson and the knowledge being delivered in a curriculum whereeach subject is taught discretely (topic-based learning). A behaviourist pedagogical approachis expected to use a lesson mixture of lecturing, modelling and demonstration, rote learning,andchoralrepetition.Allthese activitiesare'visible' andstructuredandare led by theteacher.However, during the lesson, the shift may come where the student isthe centre ofthe activity and demonstrates one's learning. Behaviourism is also sometimes referred to as atraditionalteachingstyle.

(ii) Constructivism:
Learning through experiences and reflections is a part of constructivismtheory. Constructivist pedagogy is 'invisible pedagogy' as it puts the child at the centre oflearning.Aconstructivist approachwouldincorporateprojectworkandinquiry-basedlearning and might adopt a Montessori or Steiner method. A lesson having constructivismtheory includes individualisation and leads to slower-paced learning having hidden outcomeswiththesupportoftheexpertandlessteachertalk.Thispedagogy alsohasscopeforemphasis on being outdoors and engaging with nature. Constructivism is also sometimesreferredtoas a progressiveteachingstyle.

(iii) SocialConstructivism:

Socialconstructivismpedagogycouldblendtwopriorities:teacher-guidedandstudent-centred.
The teacher uses group work elements, having smaller group sizes and limited topicsfor choices.Theteachermay alsouseteachermodelling,questioning,andamixtureofindividual,pair, and whole-class instruction.

(iv) Liberationism:

A liberationist approach involves democracy in the classroom as the student's voice is placedat the centre. The class discovers the subjects together, and the teacher plays the role of alearner. A teacher may use examples like literature containing non-standard constructions,such as graffiti or hip-hop. Students playing the role of the teacher decide about the topic ofthe lesson and showcase their learning through performance, speech, or dance. The teacherthusprovides spaceandopportunityforthe students tolearn independently.

Inadditiontothe pointsabove,the followinginnovativepedagogies maybeconsidered:

- Blendedlearning– Rethinkingthe purposeof theclassroom and classroom time
- Gamification–Engagementthroughplayandthepedagogiesof games
- Computationalthinking–Problem-solvingapproachthroughlogic
- Experientiallearning–Investigatinginacomplex world
- Multi-literaciesanddiscussion-basedteaching–Fosteringcriticalthinkingandquestioning

Three structural changes within the educational systems that have an excellent potential foremboldeningthesuccessfuldevelopmentof innovativepedagogiesmentionedaboveare:

1. Professionaldevelopmenttoensurethefoundationsof qualityteaching;
2. Wideningtheprofileofeducators;
3. Supportingnewmodelsthatarehybridsbetweenformalandnon-formallearning;

Recently, a new form of teaching, learning, and assessment have been explored, in order to guide teachers and policy makers in productive innovation, and proposed, under the title ‒InnovatingPedagogy‖[1].

- Artificial intelligence in education
- human-centred System
- Learning through open data
- Engaging with data ethics
- Social justice pedagogy
- Learning from animations
- Multisensory learning
- Online laboratories – Laboratory access for all

Another pedagogy which is much needed to be cultivated is ‗Gratitude'as pedagogy. ‒Gratitude involves the acknowledgement of what people have or receive and the conscious action of wanting to give back in some ways. When applied in an academic context, gratitude can help students to improve student-teacher and student-student relationships; it can help them to be more aware of their learning environment and increase understanding and focus on their studies. One practical approach to implementing gratitude as a pedagogy involves asking teachers and students to examine their attitude before starting their teaching or learning and during learning activities. A more detailed reflection can bring awareness of any negative attitudes towards certain topics or learning activities. These are then analysed and replaced by elements of gratitude.‖[2] It is also suggested to develop gratitude journal to enhance teaching-learning. Both teachers and students can maintain personal journals and write down three good things related to their teaching and learning respectively on a daily or weekly basis. Through this way, students and teachers would value the time and the opportunity to appreciate what was learned and taught and the people involved in the process.[3]

It is believed these pedagogies will play a part in shaping the future of teaching and learning and in opening possibilities for learners and teachers.

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[1] Lucian Ciolan, etal (ed.) (2021), ‒*Innovative Pedagogies: Ways into the Process of Learning Transformation*‖

[2] Kukulska-Hulme, A., et al (2021), *Innovative Pedagogy 2021: Open University Innovation Report 9.* Milton Keynes: The Open University. p.2.

[3] See, *Id* at p.20.

4. PedagogicalApproachesAddressingLearningNeeds:

Pedagogy, as a focus for teaching and learning, involves reflecting on different pedagogicalapproaches and helping teachers to improve and innovate the art of teaching. The changingenvironmental paradigms require new types of graduates and bring renewed pressure forhigher education to respond by developing and cultivating the students capable of meetingthosechallengesattheirworkplaces.Therefore,ateachermustassessstudents'learningneeds to adopt the matching pedagogical approach. Further, different students have theiroptimum learning methods. Some are fast in learning while reading texts and others ensurefirst listening to the teacher. Another group of students may learn once they have a practicaldemonstration.Ateachercouldfinditchallenging tomaintainthebalancethatwillbefavourableto everystudent.

The learner's learning needs represent the gap between the learning experience one wants tohave and their current state of knowledge, skill, and enthusiasm. There are four differentdomains of potential learning needs, viz., Cognitive, Social, Affective and Psychomotor, andthesearedetailed below in Table 1.

Table1: Domains ofLearningNeeds[4]

Cognitive	Social	Affective	Psychomotor
Recognizegood questions	Communicatewithpeers	Attaingoals	Beina comfortable setting
Askgoodquestions	Giveandreceive support	Nurturepositiveattitudes	Havetransportation
Gethelpfromexperts	Experienceexternal motivation	Beopentofeedback from others	Havechildcare
Practiceproblem-solving	Makeadifference	Havetimeforreflection and Self-assessment	Getenoughsleep
Think independently	Interactwhileproblem-solving	Possesswell-foundedSelf-Confidence	Havea gooddiet/ adequate energylevel
Createworkproducts	Exploreandchallenge conventions	Defineandrespond tothe locusofcontrol	Exercise
Processnew information	Growwithfriends	Haveasense ofbelonging	Haveaccessto equipmentandtools

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[4] Source: Cambridge Academies - Kingman Unified School District #20.https://www.kusd.org/education/academic-programs/cambridge-academies

Uselearningresources	Managetimeandtasks	Understand the motivationsofothers	Engageinappropriate and timelydemonst rations

The *diversity of learning needs* of the learners occurs due to the nature of the discipline,course,levelofstudy,necessarylevelofcompetency,andapplicabilityofknowledge.The refore,identificationofspecificlearningneedsisrequiredtoreflectinthelearningoutcomesofacours e,whichin turnare expectedtoreflect ingraduate attributes (GA).

Linking learning needs with graduate attributes (GAs) would ensure the holistic developmentof a student, as envisioned in NEP 2020. Development of graduate attributes, as specified inNHEQF, would require specific pedagogical approaches to serve the learning needs of astudent.Thus,ateaching-learningprocessthatensuresestablishinglinkagesbetweengraduate attributes, learning needs and pedagogical approaches would serve the purpose ofoutcome-basedteaching-learningprocess.Table3liststhesuggestivepedagogicalapproachesthat helpdevelop specificgraduate attributesbyspecifyinglearningneeds.

Table3:SuggestivePedagogicalApproaches

GraduateAttributes	LearningNeeds	Suggestive Pedagogical Approach
Comprehensiveknowledge	To know the discipline in its current form, itsemergence and future developmental aspects,Interdisciplinary and multi-disciplinary context fordisciplineknowledge	ClassroomLectureusingc halkandtalktechnique,ca se study examples,Discussion method,Thematic Teaching andLearningbydesign

Proceduralknowledge	To know how to use the knowledge professionally forhighly skilled work/tasks related to the chosen field(s)of learning, including knowledge required forundertaking self-employment initiatives, andknowledgeandmindsetnecessaryforentrepreneurship involvingenterprisecreation,improvedproduct	Activity-basedlearning,

	development, oranewmodel oforganization	
Skill	To have the skills in areas related to specialization inthe chosen disciplinary/interdisciplinary area(s) oflearninginabroadmultidisciplinary context,including wide-ranging practical skills, involving avariableinroutineandnon-routinecontextsrelatingto thechosenfield(s) oflearning	Training, Workshops,Vocationa lInternship,
Complexproblem-solving	Tohavethecompetencetosolveproblemsinfamiliarandn on-familiarandnon-familiar contexts	Analysis of criticalincidents originating infamiliarandnon-familiar situations
Criticalthinking	Havingananalyticalmindandtheabilitytosynthesizeinfor mationfrom variedsources	Group discussion,Brainstorming, Real-lifeproblems allowingreflectiontime,Int egration amongstudents
Creativity	To be able to think differently and have out-of-boxsolutions	Stimulus activity,Reframing problems,Brainstorm ing,Free writing,Mindmapping
CommunicationSkills	To have - good listening capability, expression ofthoughts in a clear and precise manner, sensitivity incommunication,confidenceandtechnicalcorrectness	Content-basedinstruction,Jigsaws, cognitivelearning,think-aloudpair problem-solving
Research-relatedskills	To have research capabilities in terms of problemformulation,thepropositionofhypotheses, useofappropriate research tools for data collection andanalysis,reportwritingandresearch ethics	Guided questioning,Experiment , Discussion,Self-reflection,Collaboration ,Project work

Coordinating/collaborating with hothers	To have the capacity to coordinate and collaborate with others toward the achievement of group goals	Peer teaching, Group project, Group grid, think-aloud pair problem-solving
Leadership	To have the capacity to organize and direct the	Teamwork, Decision

readiness/qualities	teamwork	making
Learninghow to learn skills	To have the ability to pursue self-directed learningactivitiesthroughoutthelifetobe alifelonglearner	Exploration, Self-learning,Real-life problems, Allowreflectiontime,Integration amongstudents
Digitalliteracyskills	Tohavethecapacitytousevarious ICTtoolsandsoftwareandintegratethem toanalysethe data	Use of practical exercisesusingICT tools and software
Multiculturalcompetence	To know the values and beliefs of multiple culturesandbeableto engagein amulti-culturalenvironment	Interactwithadiversegroup, Cultural meet,Diversityfocused conference
Valueinculcation	To imbibe constitutional, humanistic, ethical, andmoralvaluesinlife,includinguniversalhumanvalues oftruth,righteous conduct, peace,love,nonviolence, scientifictemper, andcitizenshipvalues	Storytelling, Debate,Discussion,Culturalmeet,Celebrationofdays of nationalimportance
Autonomy,responsibilityandaccountability	Tobeabletoworkindependently,identifyappropriateresources required for a project, and manage a projectthroughto completion, thus showcasingthe responsibilityand accountabilityinaction	Useofprojectworkandfieldwork
Environmentalawareness andaction	To know the actions needed to mitigate the effects ofenvironmental degradation, climate change andpollution	Fieldwork, Project,Scenario planning,Dramatization,Discussionmethod,Observation method
Communityengagementandservice	Toknowandparticipateinthepractices forcommunitydevelopment	Fieldwork involvescommunity services,Outdoorlearning,Project management.

Empathy	Tolearn theways to identifywith theneeds of other individualsandgroups	Storytelling,Debate, Criticalincident,

5. PedagogicalApproachesEnablingLearningofMulti-disciplinaryandInter-disciplinaryCourses:

The NEP 2020 Para's, viz., Para 11.3, Para 11.6 and Para 11.7, provide specific details aboutthe scope of multi-disciplinary and inter-disciplinary education to have holistic developmentofalearner.

Multi-disciplinary Education is a unique educational approach that allows students to learnandexploredistinctsubjectsorcurriculafromvariousdisciplines.Thereisno*rigidseparation*in disciplines.Thecurriculumwouldenablestudentstodevelopaholisticunderstandingofthesubjecta pproachesintermsofsimilaritiesanddifferencesbetweenthem. Varied academic disciplines in the curriculum are included to help in nurturing theability to critically think and have solutions to problems that are not easily acquired fromeverydayexperience.Whentaughtandappropriatelyassessed,thevarieddisciplines,including humanities, social sciences, science, mathematics, languages, and the arts, helpdevelop the ability to think critically and creatively. The student needs to be able to reflect onand apply approaches they learn in academic disciplines and become effective, critical andcreativethinkers in everydaylifein an interdisciplinaryway.

Interdisciplinary Education refers to the combination of two or more academic disciplinesintoone.Interdisciplinaryunderstandingbringstheabilityandconfidencetonavigatebet ween disciplines to make inter linkages for developing new perspectives having a holisticappreciation of knowledge. Disciplinary understanding provides the base to create a rigorousinterdisciplinary approach. In the absence of disciplinary understanding, learning can lead tosuperficial coverage and confusion. Teachers enable students to make connections in theirminds between what they learn in one context and another with the help of a supportivecurriculum.Excellentinstitutionssupportteachersinplanningcollaborativelyforthedev elopment of interdisciplinary understanding. Teachers also need to understand what theircolleaguesareteachingto aparticularyear group to connectwith theirownclasses.

Trans-disciplinary Education, thus, is an arrangement of the knowledge and skills withinone subject area. It aims at integrating the subject's knowledge and skills into a coherentwhole.

6. Information&CommunicationsTechnology (ICT)intheClassroom:

ICT for enabling learner-centred interactions, collaborative tools, ICT tools for fosteringcognitiveskillssuchassummarising,visualpresentation;conceptmapping,etc.aresignific antin development of 21st centuryskills.

Teachers can provide knowledge in different digital formats such as short-span videos, infographics, audio podcast, concept-maps, whereas discussion forums, quizzes, sharable docs,blogs,clickers, etc.,canalso beusedforlearner-engagementandcollaboration.

Using digital technologies in classrooms hascontinued to expand over the past decade.Educators find ways to commonly employ today's technologies like desktops, laptops, tabletsand smart phones, ensuring learning across various subjects. Though it is challenging toinclude ICT-based resources and activities in teaching programmes, using ICT resources

isconsideredanessentialskillalllearnersneedtodevelop.Itiscriticalfortoday'sgenerationof learners to use ICT resources to access, process, evaluate and communicate informationand data. The use of ICT contributes equally to the learners and teachers for being confident,responsible,reflective,and innovativeand engaged(Table 4).

Table4: ICT ContributionstoTeachersandLearners[5]

ICTContributions	Learners	Teachers
Confident	Confidentin workingwith information and ideas of theirownand others.	Confidenttoteachtheirsubject and engagewitheachstudentinthelearningprocess.
Responsible	Responsible for themselves,responsivetoandrespectulof others.	Responsibleforthemselves,responsivetoand respectful of others.
Reflective	Reflectiveaslearners, developingtheirabilitytolearn.	Reflectiveaslearnersthemselves,developingtheir practice.
Innovative	Innovativeandequippedfor newandfuturechallenges.	Innovativeandequippedfornew and futurechallenges.
Engaged	Innovativeandequippedfor	Intellectually,sociallyand

[5]   Source: https://www.doralinternational.org/cambridge,

https://www.browardschools.com/Page/32816Learner&TeacherAttributes

	newandfuturechallenges.	professionallyengaged, and ready

7. InnovativePedagogies:

Multiple approaches to teaching-learning allow the teaching-learning process to keep pacewith current and future developments. Use of experiential learning, inquiry-based learning,case-basedinstruction,problem-based learning,individual/groupproject-based learning,discovery learning, practical work, enhanced technology use and integration-including theuseofdigitalande-learningtechnologiesandresources,onlineplatformsandmethodsimprove teaching-learning-assessment processes. Field-based learning and visits to industrialor other research facilities etc., help in deduction based learning. The following pedagogiesemphasize constructive learning andactive involvement of the learners in their learningjourney,fulfillingthe need of 21st Centurylearningenvironment.

(i) **Flipped classroom pedagogy:** It is an innovative pedagogical approach based onthe constructivist school of thought. It is based on the blended form of learningwith an emphasis on the 21st Century skills such as Creating, Evaluating andAnalysing in the form of activity-based learning in the classroom wherein theinteractionbetweenstudentandteachertakesplaceinaflexiblelearningenvironment and culture.

(ii) **ArtIntegratedLearningPedagogy:**Itisajoyfulandexperientiallearningpedagogy.Iti saboutidentifyingtheneedsandpotentialofthelearnersandnourishing them to provide holistic growth. The students actively participate in theprocess of learning wherein they explore, develop and express their understandingandcreativeoutputusingvariousartsformsandmakesconnectionsacross curricula.

(iii) **Project-basedLearningPedagogy:**Itispedagogy ofreflective practice andcollaborationwhereinstudentsconnecttheconceptswithreal-lifesituationssothat it could promote lifelong learning and 21st-Century skills using an onlineplatformforengagementoflearners.

(iv) **Cutting Edge Pedagogy:** It is pedagogy of learning with innovation and problem-solving skills, wherein students are engaged using Technology. The diverse needsofthelearnersarecateredtousingdigitalandtechnologicalplatformssuchaspeardeck forinteractiveonline/digital learning.

(v) **CriticalPedagogicalApproach:** Thisapproachemphasizesenhancingthelearners' critical thinking skills by raising questions such as what they are learningand why they are learning, problem posing, and letting the students discover theanswers. Learners acquireknowledgebyinvestigation.

8. ModesofTeachingLearningandPedagogicalApproaches:

NEP2020envisionsholisticeducationforlearners.Theunderlyingneedforholisticeducationis to havethecombined useofdifferentpedagogical modes toensure:

(i) Transmissionofpre-existingknowledge.

(ii) Developmentofindependentand self-directedproblemsolving.

(iii) Use of dialogue andcollaboration to develop inquiry and critical thinking skillsthroughinteraction.

(iv) Transformation of learners having idea about their purpose and identity while strivingforwisdomandcompassiontohaveholisticorientationaboutselfandexternalenvironment.

Thus learning experiences need to allow for analysis, synthesis, and experimentation indisciplinary and interdisciplinary domains. Figure 2 shows various modes of teaching &learningwhich-

- Havedifferentlevelsofstudent-teacherinteraction;
- Havedifferentlevelsofstudentparticipationandengagementin-classdiscussion;
- Havedifferentlevelsofvisualizationandverbalization effects;
- Havedifferentlevelsof requiredskillorientation;
- Havedifferent levelsof experimentationopportunities;
- Requiredifferent competencylevel forteacher;
- Requiredifferent methodologyforevaluation,assessment andfeedback;
- Differentlyrequireavailability,knowledgeandexpertisefortheuseoftechnology;

Figure2:Modesof Teaching-Learning
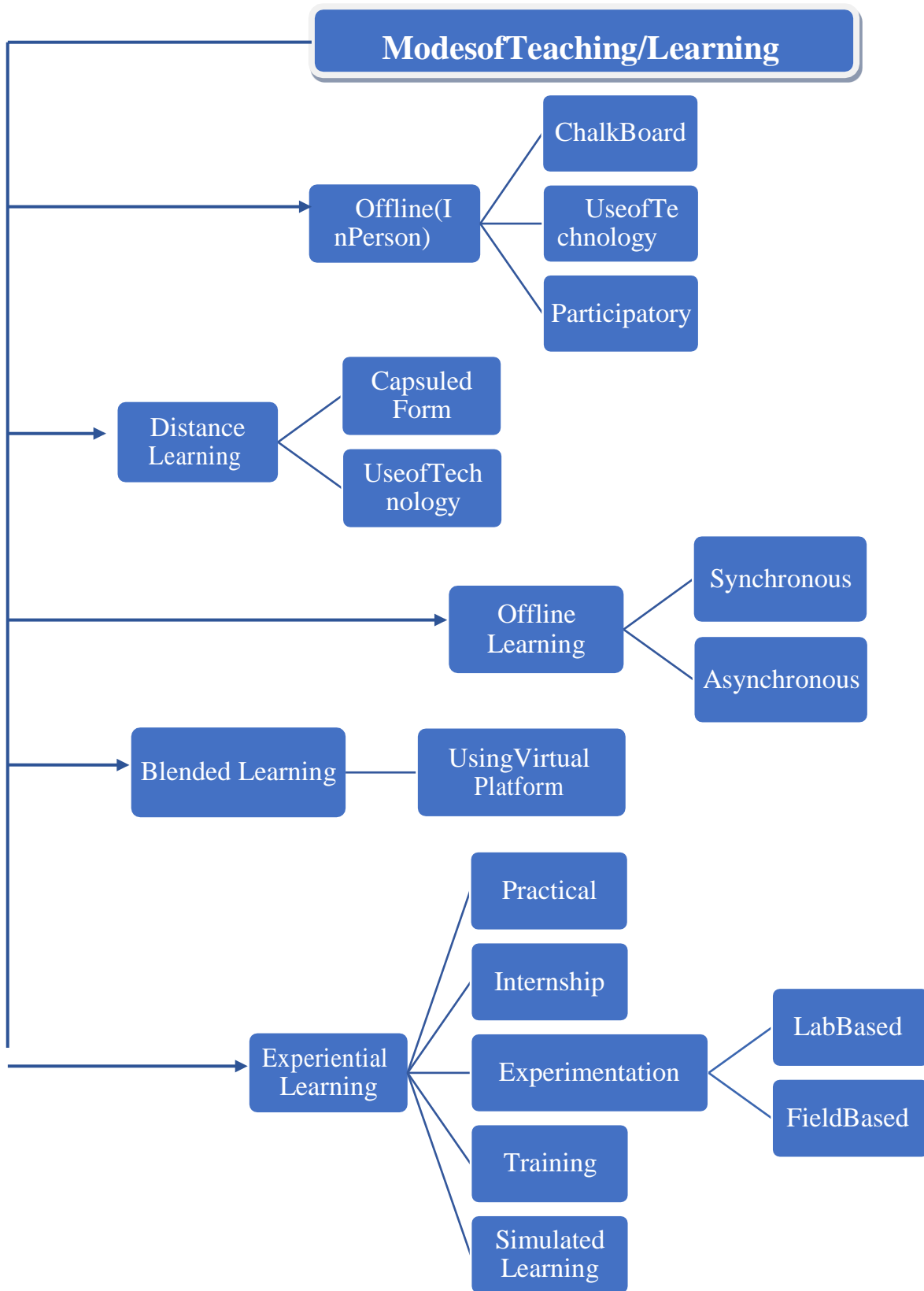
(A) OfflineModesof Teaching:

ModelsofTeaching: ModelssuchasConcept-AttainmentModel,Role-Play,AssertiveTraining Mode, Inquiry-Training Model, Jurisprudential Inquiry Model, synectics are a fewpowerful models for classroom environments, even in Higher Education. Each model hasdirect instructional as well as nurturing effects such as development of concept-formation,logicalreasoning, creativity, assertiveness, etc.

Various modes of pedagogy[6] that a teacher at HEI may use for offline (in-person classroom)teachingare:

(i) **Cooperative Learning Strategies (CLS):** These strategies include methods suchas Jigsaw, Think-Pair-Share, Team-Pair-Solo,Inside-Outside Circle, Fishbowl,ProjectQualityPlan (P-Q-P), etc.

(ii) **Brainstorming:**Usingchalkboardorapresentationdevicetoinvite ideasoflearners on a problem/issue without allowing them to criticise, but encouragingwildideaswhichshouldfollowshort-listingandcriticallyanalysingideasgenerated. Sometimes, these ideas may be categorised by learners and the teachertogetherorlearnersalonetolearn‗types'or‗categories'ofnewconcepts.

(iii) **Group discussions:** The use of discussions is an attempt to counteract the risk ofthe teacher/educator taking a transmissive or authoritarian approach, enabling thelearnergrouptoexploretheirownandothers'views.Groupdiscussionsencourage active listening, self-reflection, and the exchange of different culturalnarratives,worldviews and attitudes.

(iv) **Role-plays:** This technique provides an opportunity for participants to take ondifferentidentities(roles)andacttheseoutwithorforothersinascenariodepictingsom esustainabilityissuesoreventsothatbothparticipantsandspectatorscanempathizewith(putthemselvesintheshoesof)others,andunderstandtheirperspective,experiencesand contexts,or issue, better.

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[6] Source: Education for Sustainable Development (ESD). https://1library.net/article/education-for-sustainable-development-esd.q595w1rz

(v) **GuidedQuestioning:**Usingprobingandstructuredquestions,forexample,during fieldwork or on an interpretive walk, to direct learners' thinking aboutparticular aspects of theirexperience.

(vi) **InterpretiveTrails:**Itisaguidedwalkoratrailwithinterpretivesignagethrough an area where one can learn about the natural or built environment. Thereare different ways in which the interpretation can occur: through signs, posterboards or plaques along the way, a booklet with a map and additional information,aknowledgeableguide,anddigitaltechnologies.Manynaturereservesand botanical gardens, for example, layout walks through exciting sections of the area,illustratedifferent ecosystems,archaeologicalsites,placesofculturalinterestetc.

(vii) **Music, Poetry and Visual Art:** People learn differently. There are different waysof accessing and expressing knowledge. Art can provide a better outlet for somepeople's ideas and experiences than more formal types of expression. There areopportunities for people (children and adults) to give creative expression to theirideasandtoreflectontheirexperiencesandfeelingsaboutmatters,suchassustainabi lity, in open-ended and creative ways. Many art forms are not language-based, so they have much potential in contexts where language might be a barrierto learning. Music can help bridge barriers between very different people andhencefacilitate social learningdeliberations.

(viii) **Stimulus activities:** A stimulus activity involves watching a video or looking atphotos, poems or newspaper extracts to initiate reflection or discussion. Learnersmay even be interested in producing their own work, such as photos taken tostimulate a debate. Using videos or an externally produced document enables themultipliersto bringina wide rangeof viewpointsforcriticalanalysis.

(ix) **Critical incidents:** Learners are given an example and asked what they would do,whattheycoulddoandwhattheyshould.Criticalincidentsallowthemtoconsider their perspectives and actions in the light of an ethical stance. A teachercan use this approach with groups to promote awareness and deep reflection aboutmultipleperspectives onsustainabledevelopmentpaths.

(x) **Case studies:** These provide learners with in-depth information about a particularissueinonespecificcontext(withvaryingamountsofdetailandformality).Cas e

studies can bring diverse learning domains into curriculum areas and promote thelearners' group with a holistic view of an issue. Case studies enable students toinvestigate what affects their local area, work with community groups, NGOs orprivateenterprises, andworktogether to find solutionsforlocal issues.

(xi) **Reflexiveaccounts:**Individualsconsidertheirpositionconcerningnewknowledge about an issue. It may help them understand their actions contributingtothe issue ofconcern,e.g.,sustainability issues.Thispedagogicalapproachmakes learners reflect on personal roles, attitudes and responsibilities concerningsustainabilityissues.

(xii) **Critical reading and writing:** These are important social practices which are thekeys for promoting learning.   To assess the author's possible motivation in thetext,learners de-constructthediscourses andtryto visualizealternativefutures.

(xiii) **Problem-based learning:** Problem-based learning is an iterative learning process.A teacher uses this approach to teach a whole range of subject matter. Educationforsustainabledevelopment,forexample,requirestheidentificationofsustai nability-related issues for students to investigate and generate a body ofknowledge. Students can develop a vision of alternative actions and potentialsolutions to the problem, which helps devise a plan of action, followed by a periodof reflection and evaluation. This process thus promotes both the conceptual andpracticalaspects of sustainabilityliteracy.

(xiv) **Solution-based learning:** This approach involves an idea that one wants to bringto life and action. Therefore, it is important to work with and get inspired bypositiveexamplestopromotepositiveemotionsandmotivationforactiveparticipatio nin thecommunities andinstitutions.

(xv) **Fieldworkandoutdoorlearning:**Fieldworkisanexampleofexperientialpedagogy that can influence students' emotions and help develop the essentialcritical thinking skills to understand the complexity of an issue. Fieldwork andoutdoorlearningareoftenbasedonissuesinthelocalcommunityandenvironments, linkingtheoryto real-world examples.

(xvi) Storytelling: Telling stories is an engaging and effective form of teaching andlearning. Storytelling is currently experiencing a considerable revival of interestsince folktales about the relationship between the Earth and its human inhabitantshave been at the heart of storytelling since the earliest times. Storytelling draws onindigenoussocietiesandfolkartastheoraltraditionspractisedforgenerationsasa means of entertainment, education or cultural preservation. Storytelling makesideas, theories, and concepts come alive, offer a source of inspiration, provides uswith practical insight into approaches to our most persistent environmental, socialand economic difficulties, and helps to impart respect for cultural heritage and theenvironment.Thisenablesteacherstoreflectbettersustainabledevelopmentinformation,principles and values with the groupoflearners.

(xvii) Talks and presentations: In this activity, a body of knowledge or selection ofinformation through a structured verbal and visual presentation is presented. Talksand presentations can be helpful at the start or within a learning process when itmaybenecessarytoprovidebackgroundinformation,clarifyconceptsorintroduce a specific focus. Lecturettes of 10-15 minutes at a time to be encouragedfollowedbyparticipatory, learner-centred methods.

It is used for both types of education - offline and online. A good presentationrequires teachers to incorporate visuals such as images, GIFs, videos, etc. as it willleadto useof both auditoryandvisual senses for better learning.

(B) OnlineModesof Teaching:

(i) Live Online Classes: With Online classes, teachers deliver online lectures in real-time and need not have students in the physical classroom. Live online classesallow teachers and students to interact face-to-face and have the same classroom-like environment for learning. There are various video conferencing apps which ateacher can use. Teachers need to create and share a link with students for runningregular classes. Live online classes break the barriers of reach, and teachers canconnect to students from anywhere. Online courses become more engaging withthelive useof theonlinewhiteboard.

(ii) **Online Whiteboard:** Teachers can use online whiteboards for best practices in teaching online. In a virtual classroom setup, an online whiteboard helps them

convey information and better connect teachers and students. Online whiteboard isa canvas on which teachers can create diagrams, share pre-made templates andcharts,makesketches, write up etc.

It works just like the classroom blackboard and digitizes the content provided bythe teacher which can be reused.Teachers and studentscan connectinreal-timeforassignments,mindmapping,reviewhomework,interactiveexercises,brainstor mingaroundlessons,and givefeedback.

(iii) **OnlineQuizzes:**Onlinequizzesaretheeffectivemechanismtoincentivizestudent completion of preparatory work, enhance active learning, and from theeducator's perspective these are relatively time efficient. The online quizzes areusedto improveinstructional designandsupport formative assessment.

(iv) **Pre-RecordedVideoLectures:**Pre-RecordedVideoLecturesareoneofthesuitable online teaching methods and pedagogy, where the lectures are recordedand shared with the students instead of taking live lectures. It gives them theflexibility to attend the lecture at their own convenient time. Unlike live onlinecourses, students can also use the pre-recorded videos for revision purposes and tocleartheir doubts.

(v) **Game-Based Teaching:** Game-based teaching methods help students enjoy andnot feel bored during teaching lessons. It allows students to be better engaged andnot feel stressed students.Students who are not quite good at studying can findthis way of teaching helpful in learning and memorizing. Teachers need to ensurethat students access the same type of data for game-based teaching. Teachers startteaching using video conferencing tools, including gaming sessions and may chatthroughthechatoption with students askingquestions.

(vi) **Collaborative ICT tools:** The use collaborative ICT tools such as Digital Walls,collaborative concept-mapping tools, sticky-notes, project management tools suchas Open Project allows for better problem solving skill, increased knowledge,satisfaction and motivation for learning. The teachers need to ensure that studentswouldfind thecollaborativeICT tools easyto use.

(vii) **Flipped Classroom:** During the past few years, the flipped classroom has gainedpopularity and has emerged as one of the best teaching practices. Opposite to thetraditionalclassroomconcept,inflippedclassrooms,studentsneedtoreadand

reviewthestudy materialbeforetheirteacherteachesthem.Itisareservingconceptofactual in-classwhereteachers teach, and studentsstudylater.

Theflippedclassroomconceptincludeseffectivetechniques,likeOnlinequizzes,Polls,Infographics, Mind maps orwordclouds.

(viii) **ClassBlog:** Students create a class blog individually or inagroup aboutwhatthey have learnt. An innovative concept class, a blog allows students to exploreself-learningandshareknowledgewithotherstudentsbysharingtheblog.Teacherscan also sharetheir learningmaterialonclass blogs.

(ix) **Virtualenvironments:**VirtualLabs,Museums,Augmentedreality(AR)-Virtual reality (VR) Technologies / AR-VR contents are specifically useful inteachingscenarios requiringfield work.

(C) Blended Modeof Teaching:

Teachersmaycombinephysicalclassroomlearningactivitieswithonlinelearningcomponents.
Using a blended approach as a course design enhances students' teaching andlearningexperiences.Inmanycases,theactof―blending‖maybringbetterexperiencesand outcomes for a student and more efficient teaching and course management practices for ateacher. It can involve a mix of delivery modes, teaching approaches and learning styles.Advances in technology provide new opportunities for blended learning forms for students indiverse environments. Also, blended teaching allows the designing and delivery of courses toenhancethe teachers' role.
Theblended learningapproachesateacher mayuseinclude:
- SharingtheVideoLectureswiththe studentsforthe entirecourse.
- Use Internet-Based Learning (IBL) to promote self-learning as students mustundertakesomeinternet-based projects,i.e., thesearch&learnapproach.
- Project-Based Learning has integrated multiple peer groups for the projects,andstudentscollaborativelygenerate ideas.
- UseofTablet(TAB)basedremotelearning/remoteexaminationandevaluation.Touch screens and digital pens appeal to tactile learners requiringmobilelearning.
- Satellite-based TV channels provide an opportunity for mass learning, adulteducation,and farmereducation, takingcareof different timings.

- OnlineAssessments–Quiz,Assignments,Tests,Examinations– atregularintervalsto measurelearningoutcomes.

9. ResearchasPedagogy:

Merging education and research by integrating research as a part of teaching pedagogy is anemergedneedinoureducationsector.Researchasapedagogicaltoolistheevolvedformof –experiential learning‖. It involvesreflection, critical analysis and synthesis, initiative, decision-making,andaccountability.Studentsgetengagedintellectually,creatively,emotionally, socially, or physically. The actual learning takes place when students reflect &assesstheirdecisionsin thelightof natural consequences,mistakes, andsuccesses.

The experiential learning theory[7] is based on the idea that learning is a process wherebyknowledge is created through experience transformation. It is based on four main elementswhich operatein a continuous cycleduringthelearningexperience:

- **Concreteexperience(Do):**Atthisstage,thelearneractivelyexperiencesanactivity either in alab or field.
- **Reflectiveobservation(Observe):**Thelearnerconsciouslyreflectsontheexperien ceat this stage.
- **Abstractconceptualization(Think):**Atthisstage,thelearnerattemptstoconceptu alizeatheoryormodel based on his observation
- **Activeexperimentation(Plan):**Thisbeingthelaststage,thelearnertriestoplanhow to test themodel ortheoryfor further experience.

The introduction of research as a pedagogical tool in higher education gives an opportunityand provides an optimum learning environment as a child would explore on his own, and thelearning would be more joyful and long-lasting. It aims at developing knowledge on a topic,helps establish facts, obtain a clearer idea of how reality works, motivation, self-developmentand helps create new theories. By engaging in research, students can better understand therationalebehind others'research.

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[7]Kolb,D.A.(2014).Experientiallearning: Experienceasthesourceoflearninganddevelopment.FTpress.

Researchcan be introduced atavery early stage inhigher education tocreateawarenessabout the process. Research through systematic study makes various available methods thathelp findsolutions.

Researchasa learningtoolhelps:

- Translateclassroom knowledgeto real-world situations.
- Developadeeperunderstandingof coursematerials.
- Gainreal-worldskillsthatpotentialemployersandprofessionalprogramsvalue.
- Explorecareerpathways

Research as a pedagogical tool would help students question their perceptions and motivatethem to learn by putting them in a situation where they come to see themselves as the

authorsofanswers,astheagentsofresponsibilityforchange.Researchasapedagogicaltoolencourag es students to develop a balanced, diverse approach to solving real-world problemsindependentlyand in a team.

10. CapacityBuildingonVariousPedagogicalApproaches:

Para13.1ofNEP2020alsoemphasisesthecapacitybuildingofteachersasthemostimportant factor ensuring the quality and engagement of faculty at HEI. This brings attentiontotheroletheteachers'pedagogicalknowledge,beliefs,experiences,andprofessionaliden tityhavein shapingthelearningoutcomes of their students.

Itisnecessaryfortheteacherstoshapetheirattitudestowardsteaching,improvetheirpedagogies to make them more interactive and student-centric and make classrooms inclusivespacesfornotjustreadingbutlearning.Propertraining,continuousprofessionaldevelopme nt, and effort from the teachers themselves are required to bring about successfulchangein pedagogyat asubstantial level.

In view of the above, it involves the identification of the capacity needs of teachers in termsof:

- Communicationskills
- Presentationskills

- Knowledge enrichment
- Library resources
- Class management
- Evaluation and assessment
- Empathy
- Motivation
- Use of digital technologies

11. Improving Teaching Effectiveness: Faculty Development

Use of appropriate pedagogies is essential to ensure teaching effectiveness. However, there are other aspects of the teaching-learning process, like developing competence to assess learner needs, broadening the role of the teacher as a mentor and facilitator, use of library sources, which expands the role of pedagogy in ensuring teaching effectiveness.

All faculty members in higher educational institutions (HEI's) acquire and demonstrate specific competencies such as:

- Improving their work performance, particularly in the areas of teaching, and become more effective at facilitating student learning.
- Learning about new fields/frontiers of knowledge and apply new instructional delivery models, technologies, and pedagogies to promote improved student learning outcomes.
- Enhancing teaching effectiveness and excellence in research and engaged scholarship.
- Responding to changing learner characteristics.
- Responding to the emerging curricular thrusts and diversified knowledge requirements in local and global contexts.
- Effectively performing the expanded roles of teachers demanded by the education sector.

Preparing faculty for their expanded role is no longer mere transmitters of knowledge or instructor but also a:

- Facilitator, navigator and pathfinder;
- Counsellor, mentor;

- Contentcreator, coursedesignerand evaluator;
- Programme/coursecontentdesigner,creatoroflearningresources,evaluator,ICTexpert etc.
- Reflectivepractitionersandlifelonglearners,etc.

In addition to imparting knowledge in their subject areas, a teacher is required to-deal withstudents from diverse cultural, social and economic backgrounds, be sensitive to genderissues, promote tolerance and social cohesion, provide special attention to students withlearning disabilities, learn and apply new pedagogiesand technologies,keep pace withcurrenteducational developments and initiatives.

- Reflectivepractitionersandlifelonglearners,etc.
- Performingspecificadministrativedutiesandparentsandcommunityengagements.

Methods to bring teaching effectiveness through broadening the role of teaching pedagogyare:

- Teachers'orientationsinastructuredmanner–Gurudakshtaprogramme
- RegularFDPS/workshops–specifictocapacityrequirementstobemandatedintermsofaspecificnumber
- Accessto general readingmaterial
- Participationinseminars/conferences

12. FacultyFeedback:

NEP2020advocatestakingfeedbackfromstudents atregularintervals for providingusefulinputto theteachers.

21st Century pedagogy involves a shift toward using active teaching strategies to ensurerelevanceandinterestinthecourse.Newteachingstrategiesarenecessarytoincreasestudents' motivation and desire to learn. Immediate and constructive feedback for facultyprovides students' involvement in the class for effective teaching-learning and relationship-building mechanisms. Different teaching pedagogies allow for varying levels of students'interactions with the teacher; an HEI needs to evolve a feedback mechanism that serves thequality teaching-

learningprocessaccordingly.Also,anHEIwoulddevelopascheduledfeedbackmechanismtobetter servetheteaching-learningprocess.Usingstateoftheart

technologyforfeedbackcollection,compilation,analysis,andrecordingwouldhelpineffectivefeed back management.

13. EvaluationandAssessment:

An effective education system relies on the integrity and efficacy of the existing evaluationsystem. Unless evaluations are designed to be the best identifiers of the performance

ofstudents;studentswon'tputintheirbesteffortsinlearningandunderstandingconcepts.

It is imperative that an Educational Institute has a robust, yet flexible, evaluation systemwhich is also in consonance with NEP2020 objectives.These objectives, in the context ofevaluation,can besummarized as:

1. ContinuousandComprehensiveEvaluation
2. Criterion-basedgradingsystem
3. LearningOutcome-BasedEducationandEvaluation

NEP 2020 proposes that HEIs should adopt continuous and comprehensive evaluation ratherthan high stake examinations. Continuous and comprehensive evaluation embraces horizontalassessment modes instead of one single vertical mode. It can be used to assess the overalldevelopmentofstudents,forexample,criticalthinking,problem-solvingability,rightapplicationofknowledge, and adherenceto ethics.

NEP2020recommendsacriterion-basedgradingsystemthatemphasisesassessmentofstudent achievement based on the learning goals for each programme. A criterion defines thecharacteristics or traits to be judged. These are derived from the learning outcomes. Gradingcanbedesignedtomeasurethedegreeofachievementoneachcriterionthusmakingassessme ntsmoremeaningful.

HEIs should focus on Outcome Based education and evaluation. Outcome-Based Education(OBE) advocatesthe importance of establishing a ‒clear picture of what is important for students to be able to do, and then organizing the curriculum, instruction, and assessment tomake sure that this learning ultimately happens. [10]‖ Learning outcome-based performanceevaluation is necessary to assess modern skills and domain-specific competencies (BritishPsychologicalSociety,2019).Itensures thatevaluation ismorestudents centric.

13.1 APrescriptionforan EvaluationSystem

Learning outcomes drive curriculum, instruction and evaluation.Accordingly, the questionsthatneed to be addressed, in sequence,areshow in Figure.

This leads to the identification of outcomes, competencies, performance indicators and finallyassessmentas show in Figure, and asalso described in detail.
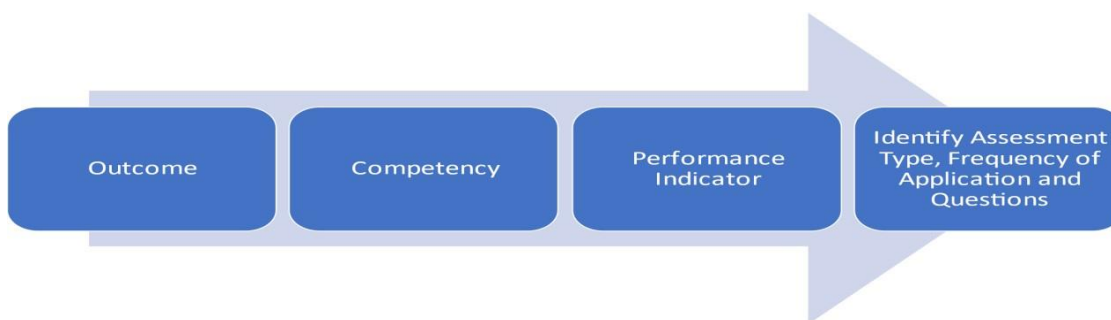
Any evaluation and assessment system must test different levels of cognitive attainment asillustratedin Figure.
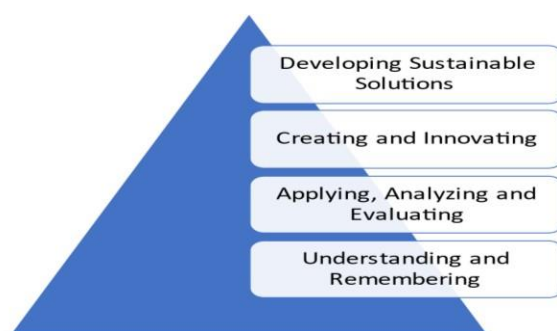
Across these levels, mental skills (knowledge) are tested which deal with how a studentacquires, processes, and utilizes knowledge. The levels represent a continuum of increasingcognitivecomplexity—from rememberingto creatingto developingsustainable solutions.[11]

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(11). A Taxonomy of Learning, Teaching and Assessment , Anderson and Krathwohl's (2001) revision of theoriginalBloom'staxonomy.

13.2 TheAssessmentContinuum

Bestpracticeineducationalresearchdictatestriangulatingassessmentdata.Ifseveraldifferentsourc esofdata,i.e.,assessmentsareused,itincreasestheprobability

thatanaccurateassessmentofstudentlearningwillemerge.Furthermore,assessmentsmustbecontin uous,asalsosuggestedinNEP2020,andincludeavarietyofassessmentsforcontinuous and complete feedback. The continuum in Figure below positions a sample oftypesofassessment on atime axis.
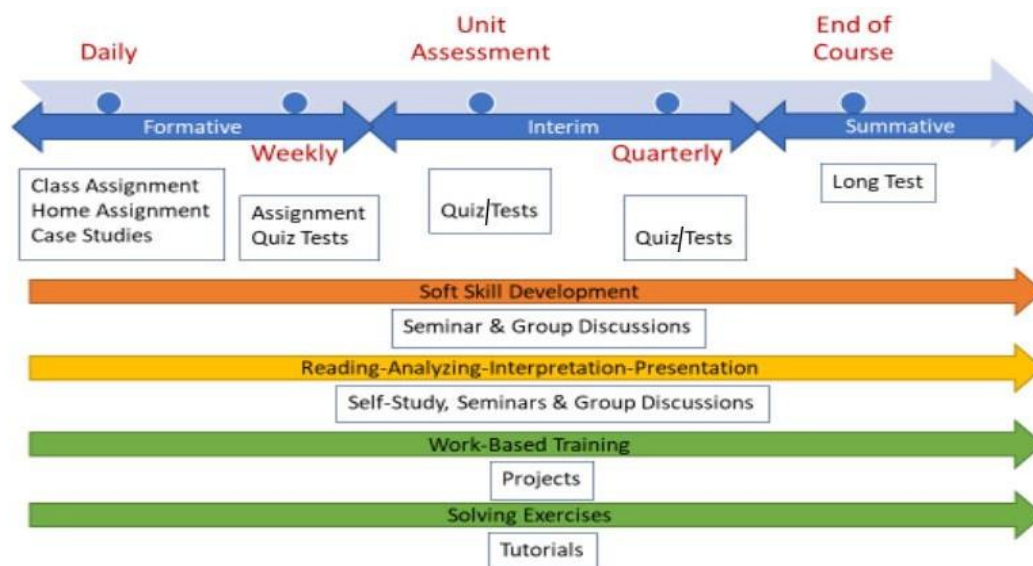
14. EvaluationandAssessmentTools:

TheNationalEducationPolicy2020emphasizesformativeandcompetency-basedassessment for developing higher-order thinking skills such as creativity, critical thinking andanalysis.The assessmentshelpthe learner totrackandimprove the learning outcomes/approachesandpromoteholisticdevelopment of the learner.

Pedagogicalapproachesusedbyateacherdeterminetheuseofoneormoretypesofevaluation tools, which are formative or summative or both.Evaluation and assessment toolssupporting the teacher's pedagogy for a course need to help determine the achievement ofgraduateattributes.Inotherwords,theachievementofdifferentgraduateattributeshaslinkage with specific pedagogical approach(s) and evaluation and assessment tools used as apartofformativeand summativeassessment.

TheEvaluationandAssessmentToolsandstrategiescorrespondingtodifferentpedagogicalapproac hesareas follows:

- **Criterion-referencedassessment:**Itistheprocessofevaluatingstudentsbasedonthepre-specifiedcriteriaforcompetency-based outcomes.

- **Rubrics:**Itisamethodofgradingassignmentsbasedoncertaincriteriaandhelpsthelearnerst o understandtheperformancecriteriaand performanceexpectations.

- **Portfolios:**Itisbasedoncollectingthestudents'workforassessment.Itcanbedevelopedusin gtechnologysuchas a web-based e-portfolio forauthenticassessment.

- **PeerAssessment:**Ithelpsthelearnerstogetfeedbackfromtheirpeersandimprovetheirperfo rmance.

- **Self-assessment:**Itistheprocessofknowingwhatthelearnersalreadyknow,whattheywant to know, andwhat theyhavelearned.

Theuseofassessmentmethodsthatwouldassessallaspectsoflearning,includingdisciplinary knowledge and skills as well as generic 21st century appropriate skills within agivenprogrammeof study,is:

- Time-constrainedexaminations
- Closed/openbookexamination
- Problem-basedassignments
- Practicalassignmentreports
- Observationofpracticalskills
- Individualproject reports(case-studyreports)
- Teamprojectreports
- Oralpresentations,includingseminarpresentations
- Vivavoceinterviews
- Computerizedadaptivetesting
- Peerandself-assessment
- Examinationondemand
- Modularcertificationtofacilitateexitandre-entry oflearnersintotheeducationsystem

14.1 SemesterandCumulativeGradingSystem

SemesterGradePointAverage(SGPA)andCumulativeGradePointAverage(CGPA)arethe measures of performance of students for the work done in a semester and across allsemesters,respectively.**Numerically,itshouldbeexpressedup tothreedecimalplaces.**

The SGPA is the ratio of sum of the product of the number of credits with the grade pointsscored by a student in all the courses taken by a student and the sum of the number of creditsofall the coursescompleted byastudent, i.e

SGPA(Si)=∑(Cix Gi)/∑Ci

(WhereCiisthenumberofcreditsoftheithcourseandGiisthegradepointscoredbythe student in the ithcourse)

On the other hand, CGPA is also calculated in the same manner considering theoverall performance of students in terms of all the courses undergone by a student across allthesemesters of an academicprogramme, i.e.

CGPA= ∑(CixSi)/∑ Ci

(whereSiistheSGPAoftheithsemesterandCiisthetotalnumberofcreditsinthatsemester)

Numerically,allGPAcomputationsshouldbeexpressedupto3decimalplaces.Thiswillensure

- Greaterprecisioninassigningcredittostudent'sacademicachievements
- Greaterprecisionindiscerningdifferencesinachievement
- Moreprecisioninconversionsfrom oneformattoanother

14.2 OnlineEducationandEvaluation

The Online Education Program as envisaged in the NEP-2020 also, has twin noble objectives.First,itismeanttoprovidethe_last,thelost,theleastandthelowest'aneffectivelyaffordable option for education right from an early stage to beyond University education.Second, it is aimed towards working professionals and students who find it a very convenientoptiontobalancetheiracademicadvancementalongwiththeirprofessionalcareers.However,thechallengeinmeetingtheabovegoalslieswithInstitutionsintermsofdesigning,developinganddeliveringhighqualitydigitalcontentandinimplementinga

mechanism to evaluate and objectively measure the performance of each student enrolled inthismodeof education.

While the components of evaluation may be the same as that in the offline mode, the ‗OnlineSupervised Monitoring and Evaluation' may be necessary to implementsuch programs. Atest that is administered online is monitored/ mentored in supervised mode. The use of State-of-the-artICTtechnologiessuchasAudioandVideoconferencing,Digitalsurveillance,Plagiarismdetectin gsoftwareandOnlineCourseMonitoringSystemwillprovetobeinstrumental in meeting this scenario. Alternately, all tests may be conducted in offline modeatdesignated canters.

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