Engineering Education - Multidisciplinary and Holistic Education Across All Fields, With Flexible Curricula, Creative Combinations of Subjects, And Multiple Entry and Exit Points as Per NEP-2020.

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ABSTRACT:
The National Education Policy (NEP) 2020 is a comprehensive framework for transforming the Indian education system to meet the needs and aspirations of the 21st century. One of the key features of the NEP 2020 is to promote multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This means that students will have more choices and opportunities to pursue their interests and passions, and to develop their skills and competencies in a variety of domains.

The NEP 2020 proposes a new curricular and pedagogical structure for school education, which is based on the principle of 5+3+3+4. This means that the school education will consist of five years of foundational stage (three years of pre-primary and two years of Grades 1-2), three years of preparatory stage (Grades 3-5), three years of middle stage (Grades 6-8), and four years of secondary stage (Grades 9-12). This structure will replace the existing 10+2 system and will provide greater flexibility and continuity for students.¹

Technology plays a significant role in the NEP 2020, as it aims to transform the Indian education system to meet the needs and aspirations of the 21st century. Technology can help improve the quality, accessibility, affordability, and equity of education for all students and educators.

There are many examples of digital initiatives in India that aim to improve the online infrastructure and increase the internet accessibility among citizens.
The Digital India programme is a flagship initiative of the Government of India that aims to transform the country into a digitally empowered society and knowledge economy. The programme has achieved many milestones and achievements since its launch in 2015.

A broad-based education is an education that covers a wide range of subjects and disciplines, such as the arts, humanities, sciences, social sciences, sports, languages, and vocational subjects. A broad-based education aims to provide students with a comprehensive and balanced foundation of knowledge, skills, values, and attitudes that will enable them to pursue their interests and passions, and to develop their potential in various domains of life.

Encourage lifelong learning and continuous professional development of students is one of the objectives of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This objective is based on the premise that the 21st century requires learners to keep updating their knowledge and skills according to the changing needs and demands of the society and the economy.

Create awareness and acceptance among students, parents, teachers, employers, and society about the benefits and value of multidisciplinary and holistic education is one of the challenges and problems of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This challenge is based on the premise that there are many misconceptions, stereotypes, and prejudices about multidisciplinary and holistic education among various stakeholders, such as:

Address the issues of equity, access, affordability, and inclusion for all students, especially those from disadvantaged backgrounds, is one of the challenges and problems of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This challenge is based on the premise that there are many barriers and inequalities that prevent or limit the participation and success of some students in the education system.

Inclusive education is a form of education that aims to include all students, regardless of their abilities, backgrounds, or needs, in the same classrooms and schools. Inclusive education values the diversity and uniqueness of each student and provides them with equal opportunities to learn and grow. Inclusive education also benefits the teachers, the parents, and the society, as it fosters a culture of respect, acceptance, and collaboration.

Students will have more freedom and flexibility to choose their subjects, courses, programmes, and careers according to their aptitude, interest, and potential is one of the benefits of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This benefit is based on the premise that the 21st century requires learners to have more choices and opportunities to pursue their interests and passions, and to develop their skills and competencies in a variety of domains.

The role of parents in promoting multidisciplinary and holistic education is very important and significant. Parents are the first and most influential teachers of their children, and they can support and
enhance their children's learning and development in various ways. Some of the ways that parents can promote multidisciplinary and holistic education for their children.

Technology can help in involving parents in the learning process of their children in many ways. Technology can enable parents to communicate with teachers, access information and resources, monitor and support their children's progress, and participate in various activities and events. Here are some examples of how technology can help in involving parents in the learning process of their children:

Educators can overcome the challenges of involving parents in the learning process of their children by using various strategies and methods that can address the barriers and enhance the benefits of parental involvement.

Some of the challenges and problems of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points.

Educators can overcome the challenges of promoting multidisciplinary and holistic education by using various strategies and methods that can address the barriers and enhance the benefits of multidisciplinary and holistic education.

The role of employers in promoting multidisciplinary and holistic education is very important and significant. Employers are the key stakeholders and beneficiaries of the education system, as they provide the opportunities and challenges for the graduates and professionals who have acquired a multidisciplinary and holistic education. Employers can support and enhance the multidisciplinary and holistic education of their current and potential employees in various ways. Some of the ways that employers can promote multidisciplinary and holistic education.

**INTRODUCTION:**
The National Education Policy (NEP) 2020 is a comprehensive framework for transforming the Indian education system to meet the needs and aspirations of the 21st century. One of the key features of the NEP 2020 is to promote multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This means that students will have more choices and opportunities to pursue their interests and passions, and to develop their skills and competencies in a variety of domains.

**OBJECTIVES:**
Some of the objectives of this feature are:

- To provide a broad-based education that covers the arts, humanities, sciences, social sciences, sports, languages, and vocational subjects.
- To foster critical thinking, creativity, collaboration, communication, and problem-solving skills among students.
- To enable students to integrate knowledge across disciplines and apply it to real-world situations.
- To reduce the rigid boundaries between streams and levels of education, and to facilitate horizontal and vertical mobility of students.
➢ To encourage lifelong learning and continuous professional development of students.

CHALLENGES:
Some of the challenges and problems of this feature are:
➢ To ensure adequate infrastructure, resources, and faculty for offering multidisciplinary and holistic education in all institutions.
➢ To design and implement flexible and innovative curricula that cater to the diverse needs and interests of students.
➢ To develop and maintain high standards of quality and accreditation for multidisciplinary and holistic education programmes.
➢ To create awareness and acceptance among students, parents, teachers, employers, and society about the benefits and value of multidisciplinary and holistic education.
➢ To address the issues of equity, access, affordability, and inclusion for all students, especially those from disadvantaged backgrounds.

BENEFITS:
Benefits of this feature for students and institutions are:
➢ Students will have more freedom and flexibility to choose their subjects, courses, programmes, and careers according to their aptitude, interest, and potential.
➢ Students will have more exposure and opportunities to learn from different disciplines, perspectives, cultures, and experiences.
➢ Students will have more chances to acquire multiple skills and qualifications that will enhance their employability and competitiveness in the global market.
➢ Institutions will have more autonomy and innovation to offer multidisciplinary and holistic education programmes that suit their vision, mission, and goals.
➢ Institutions will have more collaboration and cooperation with other institutions, industry, civil society, and government to create synergies and partnerships for multidisciplinary and holistic education.

To illustrate these points further, here are some examples of multidisciplinary and holistic education programmes that are being offered or planned by some institutions in India:
➢ The Indian Institute of Technology (IIT) Madras has launched a new Bachelor of Technology (B.Tech) programme in Data Science and Artificial Intelligence (AI), which combines courses from mathematics, statistics, computer science, engineering, humanities, social sciences, management, law, ethics, etc.(1).
➢ The Indian Institute of Science (IISc) Bangalore has introduced a new four-year Bachelor of Science (B.S) programme in Research, which offers a broad-based foundation in natural sciences (physics, chemistry, biology), mathematics (including statistics), engineering (including computer science), humanities (including economics), etc. (2).
➢ The Ashoka University in Sonipat has established a liberal arts model of education that offers undergraduate degrees in arts (B.A) or science (B.Sc), with majors in various disciplines such as economics, history, psychology, physics, biology etc., along with minors in other disciplines such as philosophy, sociology etc.(3).
The Krea University in Sri City has envisioned an interdisciplinary learning model that offers undergraduate degrees in arts (B.A) or science (B.Sc), with majors in various disciplines such as economics, history etc., along with concentrations in other disciplines such as data science etc.(4).

These are some examples of how multidisciplinary and holistic education can be implemented in India. However, there are many more possibilities and variations that can be explored by different institutions according to their context and capacity. The NEP 2020 provides a broad framework and guidelines for enabling such transformations in the Indian education system.

1. NEP-2020 Features aim to transform Indian Education System:
There are many other features of NEP 2020 that aim to transform the Indian education system. Some of them are:

- The NEP 2020 proposes a new curricular and pedagogical structure for school education, which is based on the principle of 5+3+3+4. This means that the school education will consist of five years of foundational stage (three years of pre-primary and two years of Grades 1-2), three years of preparatory stage (Grades 3-5), three years of middle stage (Grades 6-8), and four years of secondary stage (Grades 9-12). This structure will replace the existing 10+2 system and will provide greater flexibility and continuity for students.¹

- The NEP 2020 also emphasises on promoting multilingualism and Indian languages in school education. The policy recommends that the medium of instruction until at least Grade 5, but preferably till Grade 8 and beyond, will be the home language/mother tongue/local language/regional language. The policy also suggests that students will learn at least three languages, with one of them being an Indian classical language, by Grade 6. The policy also aims to preserve and promote the linguistic diversity of India by supporting the development of textbooks and teaching-learning materials in different languages (14).

- The NEP 2020 also introduces major reforms in the assessment system for school education. The policy proposes to shift from a high-stakes examination system to a more holistic and continuous evaluation system that focuses on learning outcomes and competencies. The policy also suggests that the board exams for Grades 10 and 12 will be redesigned to test core concepts and skills, rather than rote memorisation. The policy also envisages setting up a new National Assessment Centre, PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development), which will monitor the quality and standards of student assessment across the country (14).

- The NEP 2020 also aims to ensure equitable and inclusive education for all students, especially those from socially and economically disadvantaged groups (SEDGs). The policy proposes to set up a Gender Inclusion Fund and Special Education Zones for providing quality education to girls, transgender students, and students with disabilities. The policy also advocates for providing scholarships, hostels, transportation, mentoring, counselling, and other support mechanisms for SEDG students. The policy also recognises the importance of respecting the diversity and identity of all learners, and ensuring a safe and conducive learning environment for them (14).

- The NEP 2020 also recognises the role of teachers as the key agents of change in the education system. The policy proposes to revamp the teacher education system by ensuring that all teachers are recruited through a robust and transparent process, based on merit and aptitude. The policy also
suggests that all teachers will have to undergo a mandatory induction programme before joining service, and will have to participate in continuous professional development programmes throughout their career. The policy also aims to enhance the dignity, autonomy, and accountability of teachers by creating a conducive work culture and environment for them (14).

These are some of the other features of NEP 2020 that you should know about. If you want to learn more about the policy, you can visit [this website] (14) or read [this document] (15).

2. Role of Technology in NEP-2020:
Technology plays a significant role in the NEP 2020, as it aims to transform the Indian education system to meet the needs and aspirations of the 21st century. Technology can help improve the quality, accessibility, affordability, and equity of education for all students and educators. Some of the ways that technology is integrated in the NEP 2020 are:

➢ The creation of a National Educational Technology Forum (NETF), which will provide a platform for the exchange of ideas, research, innovation, and best practices on the use of technology to enhance learning, assessment, planning, and administration. The NETF will also provide independent evidence-based advice to the central and state governments on technology-based interventions (18).

➢ The promotion and expansion of online and digital education, especially during the COVID-19 pandemic and beyond. The NEP 2020 envisages setting up a dedicated unit for digital and online learning within the Ministry of Education, which will coordinate the development and implementation of various digital initiatives such as DIKSHA, SWAYAM, SWAYAM Prabha, e-Pathshala, National Digital Library (NDL), etc. The NEP 2020 also encourages the use of blended learning models that combine online and offline modes of teaching and learning (18).

➢ The development and use of educational software and hardware that can support various aspects of education such as curriculum design, pedagogy, assessment, teacher training, student development, etc. The NEP 2020 recognises the potential of new technologies such as artificial intelligence, machine learning, blockchain, smart boards, handheld computing devices, adaptive computer testing, etc. to enhance educational outcomes and processes. The NEP 2020 also emphasises the need for rigorous and transparent evaluation of these technologies before they are scaled up (18).

➢ The enhancement of digital skills and literacy among students and educators. The NEP 2020 proposes to integrate digital skills and literacy across the curriculum from the foundational stage onwards. The NEP 2020 also suggests that teachers will be trained in using various digital tools and resources for effective teaching and learning. The NEP 2020 also aims to ensure digital safety and security for all users by creating awareness and adherence to ethical standards and legal norms (18).

These are some of the ways that technology is integrated in the NEP 2020. Technology can be a powerful enabler for achieving the vision and goals of the NEP 2020. However, technology is not a substitute for human interaction and guidance. Therefore, technology should be used judiciously and appropriately to complement and supplement the efforts of teachers and educators.
3. Digital initiatives in India:
There are many examples of digital initiatives in India that aim to improve the online infrastructure and increase the internet accessibility among citizens. Some of these initiatives are:

Digi Locker: This is a service that allows users to store their important documents such as Voter ID Card, Pan Card, BPL Card, Driving License, education certificates, etc. in the cloud. Users can access their documents anytime and anywhere using their Aadhaar number and mobile number. This initiative helps to reduce the use of physical documents and enable digital verification and authentication (25).

MyGov.in: This is a platform that enables citizens to participate in the governance and development of the country. Users can share their ideas, suggestions, feedback, and grievances with the government through various channels such as discussions, polls, blogs, talks, etc. Users can also volunteer for various tasks and activities related to various government schemes and programmes (25).

eSign Framework: This is an initiative that enables users to digitally sign a document online using Aadhaar authentication. Users can use their Aadhaar number and biometric or OTP verification to sign any document electronically. This initiative helps to simplify the process of document signing and eliminate the need for physical signatures (25).

Swachh Bharat Mission mobile app: This is an app that supports the Swachh Bharat Mission, which is a nationwide campaign to clean up India. Users can use the app to report issues related to sanitation, hygiene, and waste management in their locality. Users can also view the progress of the mission and access various resources and information related to it (25).

National Scholarship Portal: This is a portal that provides a one-stop solution for students to apply for various scholarships offered by the central and state governments. Users can register, fill, submit, and track their scholarship applications online. Users can also access various schemes and guidelines related to scholarships (25).

eHospital: This is an initiative that provides online services related to health care delivery. Users can use this initiative to book appointments, pay fees, view reports, access medical records, etc. from various hospitals across the country. Users can also access various health-related information and resources (25).

These are some of the examples of digital initiatives in India that you should know about. There are many more initiatives that are being implemented or planned by the government and the private sector to make India more digitally advanced. You can learn more about them by visiting [this website] (23) or reading [this report] (24). I hope you found this answer informative and helpful.

4. Digital India programmes:
The Digital India programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. The programme was launched on July 1, 2015 by Hon’ Prime Minister Shri Narendra Modi. The programme covers multiple
Government Ministries and Departments, and weaves together a large number of ideas and thoughts into a single, comprehensive vision. The programme has three core components:

The Digital India programme is a flagship initiative of the Government of India that aims to transform the country into a digitally empowered society and knowledge economy. The programme has achieved many milestones and achievements since its launch in 2015. Some of them are:

**Aadhaar:** Aadhaar is a 12-digit biometric and demographic based identity that is unique, lifelong, online and authenticable. It provides a digital identity to more than 135.5 crore residents of India and enables them to access various government and private services such as banking, subsidies, health care, education, etc. Aadhaar also helps to prevent fraud, corruption, and leakage in the delivery of benefits and services (28).

**Common Services Centres (CSCs):** CSCs are physical facilities that offer government and business services in digital mode in rural areas through Village Level Entrepreneurs (VLEs). CSCs provide over 400 digital services such as e-governance, e-education, e-health, e-agriculture, e-commerce, etc. to the citizens. So far, 5.21 lakh CSCs are functional across the country, out of which, 4.14 lakh CSCs are functional at Gram Panchayat level (28).

**BharatNet:** BharatNet is a project to provide broadband connectivity to all the 2.5 lakh Gram Panchayats in the country using optical fibre network. BharatNet aims to enable the delivery of various digital services such as e-governance, e-health, e-education, etc. to the rural population. So far, over 1.56 lakh Gram Panchayats have been connected with optical fibre network under BharatNet (28).

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**MyGov:** MyGov is a platform that enables citizens to participate in the governance and development of the country. Users can share their ideas, suggestions, feedback, and grievances with the government through various channels such as discussions, polls, blogs, talks, etc. Users can also volunteer for various tasks and activities related to various government schemes and programmes. So far, over 2 crore users have registered on MyGov and over 1.3 crore tasks have been completed by them (32).

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India BPO Promotion Scheme (IBPS) and North East BPO Promotion Scheme (NEBPS): These schemes aim to create employment opportunities and disperse the Information Technology and Information Technology Enabled Services (IT/ITES) industry in small cities and towns by incentivising the setting up of Business Process Outsourcing (BPO) and ITES operations by providing financial support of up to ₹ 1 lakh per seat in the form of viability gap funding towards capital and operational expenditures. Under these schemes, 246 BPO/ITES units have started operations covering 27 States/UTs and are providing direct employment to over 51,584 persons (28).

These are some of the achievements of Digital India programme that you should know about. There are many more initiatives and projects that are being implemented or planned by the government and the private sector to make India more digitally advanced. You can learn more about them by visiting [this website] (28) or reading [this document] (29).

5. Digital Infrastructure as a Utility to Every Citizen: This component aims to provide high-speed internet access, mobile connectivity, digital identity, digital locker, e-signature, and online platforms for various government services to every citizen of India.

➢ Governance and Services on Demand: This component aims to provide seamless and integrated online services to citizens and businesses, such as e-governance, e-education, e-health, e-agriculture, e-commerce, etc. This component also aims to simplify and automate the government processes and workflows, and enhance the transparency and accountability of the government (34).

➢ Digital Empowerment of Citizens: This component aims to provide digital literacy and skills to citizens, especially the rural and marginalized sections of the society. This component also aims to promote innovation and entrepreneurship in the digital domain, and create a culture of digital inclusion and participation.

The Digital India programme has several benefits for the country, such as:

➢ It can boost the economic growth and development of India by creating new opportunities for employment, trade, investment, innovation, etc.

➢ It can improve the quality of life and well-being of citizens by providing them access to information, education, health care, social security, etc.

➢ It can enhance the efficiency and effectiveness of the government by reducing costs, delays, errors, corruption, etc.

➢ It can strengthen the democracy and governance of India by increasing the participation and empowerment of citizens, especially the women and youth.

The Digital India programme also faces some challenges and problems, such as:

➢ It requires a huge investment in infrastructure, technology, human resources, etc., which may pose financial and logistical constraints for the government.

➢ It requires a high level of coordination and collaboration among various stakeholders, such as central and state governments, private sector, civil society, etc., which may pose administrative and political challenges for the government.

➢ It requires a high level of awareness and acceptance among the citizens, especially the rural and illiterate sections of the society, who may face difficulties in accessing and using the digital services.
➢ It requires a high level of security and privacy for the data and information of the citizens, which may pose legal and ethical challenges for the government.

The Digital India programme is an ambitious and visionary initiative that can transform India into a modern and progressive nation. However, it also requires a lot of planning, implementation, monitoring, evaluation, and improvement to achieve its goals. You can learn more about the Digital India programme by visiting [this website] (34) or reading [this document] (35).

6. Achievements of Digital India Initiatives:
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7. To provide a broad-based education that covers the arts, humanities, sciences, social sciences, sports, languages, and vocational subjects:

A broad-based education is an education that covers a wide range of subjects and disciplines, such as the arts, humanities, sciences, social sciences, sports, languages, and vocational subjects. A broad-based education aims to provide students with a comprehensive and balanced foundation of knowledge, skills, values, and attitudes that will enable them to pursue their interests and passions, and to develop their potential in various domains of life.

Some of the benefits of a broad-based education are:

➢ It helps students to develop a holistic and integrated understanding of the world and themselves, by exposing them to different perspectives, cultures, experiences, and ways of thinking.
➢ It fosters critical thinking, creativity, communication, collaboration, and problem-solving skills among students, by challenging them to analyze, synthesize, evaluate, and apply information from various sources and disciplines.
➢ It enhances the employability and competitiveness of students in the global market, by equipping them with multiple skills and qualifications that are relevant and adaptable to different contexts and situations.
➢ It encourages lifelong learning and personal growth among students, by providing them with opportunities to explore their interests and passions, and to discover new areas of learning and development.

Some examples of institutions that offer a broad-based education are:

➢ The University of Hong Kong (HKU), which has a common core curriculum that requires all undergraduate students to take courses from four areas: scientific and technological literacy, humanities, global issues, and China: culture, state and society (46).
➢ The Yale-NUS College in Singapore, which has a liberal arts curriculum that covers six domains: literature and humanities; philosophy, politics and economics; mathematical computational and statistical sciences; physical sciences; life sciences; social sciences (47).

➢ The University College London (UCL), which has a bachelor of arts and sciences (BASc) degree that allows students to combine arts/humanities/social sciences with sciences/engineering/health sciences (48).

8. To foster critical thinking, creativity, collaboration, communication, and problem-solving skills among students:

To foster critical thinking, creativity, collaboration, communication, and problem-solving skills among students is one of the objectives of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This objective is based on the premise that the 21st century requires learners to have these skills to cope with the complex and dynamic challenges of the world. These skills are also essential for personal and professional development, as well as for social and civic engagement.

Some of the ways that multidisciplinary and holistic education can foster these skills among students are:

➢ By exposing students to different disciplines, perspectives, cultures, and experiences, multidisciplinary and holistic education can help students to develop a holistic and integrated understanding of the world and themselves. This can enhance their critical thinking skills, as they will be able to analyze, synthesize, evaluate, and apply information from various sources and disciplines. It can also enhance their creativity skills, as they will be able to generate new and original ideas and solutions by combining knowledge from different domains.

➢ By providing students with more choices and opportunities to pursue their interests and passions, multidisciplinary and holistic education can help students to develop their motivation and curiosity for learning. This can enhance their problem-solving skills, as they will be able to identify, define, and solve problems that are relevant and meaningful to them. It can also enhance their communication skills, as they will be able to express their thoughts, feelings, and opinions clearly and effectively in various modes and media.

➢ By facilitating horizontal and vertical mobility of students across streams and levels of education, multidisciplinary and holistic education can help students to develop their flexibility and adaptability for learning. This can enhance their collaboration skills, as they will be able to work with others from diverse backgrounds, disciplines, and abilities. It can also enhance their lifelong learning skills, as they will be able to update their knowledge and skills continuously according to the changing needs and demands of the society.
These are some of the ways that multidisciplinary and holistic education can foster critical thinking, creativity, collaboration, communication, and problem-solving skills among students. However, these skills are not only dependent on the curriculum design and content, but also on the pedagogy and assessment methods that are used by the teachers and educators. Therefore, it is important that teachers and educators adopt learner-centered, inquiry-based, project-based, experiential, cooperative, and formative approaches to teaching and learning that can support the development of these skills among students.

9. To enable students to integrate knowledge across disciplines and apply it to real-world situations:

To enable students to integrate knowledge across disciplines and apply it to real-world situations is one of the objectives of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This objective is based on the premise that the 21st century requires learners to have the ability to connect and synthesize information from different domains and sources, and to use it to solve complex problems and challenges that they may encounter in their personal, professional, and civic lives.

Some of the ways that educators can enable students to integrate knowledge across disciplines and apply it to real-world situations are:

➢ By designing and implementing interdisciplinary curricula that cover a wide range of subjects and disciplines, such as the arts, humanities, sciences, social sciences, sports, languages, and vocational subjects. Interdisciplinary curricula can help students to develop a comprehensive and balanced foundation of knowledge, skills, values, and attitudes that will enable them to pursue their interests and passions, and to develop their potential in various domains of life. For example, the University of Hong Kong (HKU) has a common core curriculum that requires all undergraduate students to take courses from four areas: scientific and technological literacy, humanities, global issues, and China: culture, state and society (51).

➢ By providing students with authentic and meaningful learning experiences that involve real-world problems and phenomena that are relevant and meaningful to them. Authentic and meaningful learning experiences can help students to develop a deeper understanding of the concepts and principles of different disciplines, and to apply them to new contexts and situations. For example, the Smithsonian Science Education Center has developed a series of modules that engage students in solving real-world problems using science inquiry skills (52).

➢ By facilitating students' collaboration and communication with peers, teachers, experts, and community members from diverse backgrounds, disciplines, and abilities. Collaboration and communication can help students to learn from different perspectives, cultures, experiences, and ways of thinking, and to share their ideas, opinions, feedback, and solutions with others. For example, the XQ Institute has created a guide for interdisciplinary teaching and learning that provides strategies for fostering collaboration and communication among students (53).

➢ By assessing students' learning outcomes using multiple modes and criteria that reflect the interdisciplinary nature of the learning process. Multiple modes and criteria can help students to demonstrate their understanding of the content knowledge, skills, values, and attitudes of different disciplines, as well as their ability to integrate them across disciplines and apply them to real-world situations.
situations. For example, the International Baccalaureate (IB) Diploma Programme has an interdisciplinary subject called Theory of Knowledge (TOK) that assesses students' critical reflection on the nature of knowledge across different disciplines (54).

These are some of the ways that educators can enable students to integrate knowledge across disciplines and apply it to real-world situations. However, these ways are not exhaustive or prescriptive. Educators can adapt and modify them according to their context and capacity. The main goal is to provide students with a multidisciplinary and holistic education that prepares them for the challenges and opportunities of the 21st century.

10. Reduce the rigid boundaries between streams and levels of education, and to facilitate horizontal and vertical mobility of students:

To reduce the rigid boundaries between streams and levels of education, and to facilitate horizontal and vertical mobility of students is one of the objectives of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This objective is based on the premise that the 21st century requires learners to have more freedom and flexibility to choose their subjects, courses, programmes, and careers according to their aptitude, interest, and potential.

Some of the benefits of reducing the rigid boundaries between streams and levels of education, and facilitating horizontal and vertical mobility of students are:

- It helps students to explore their interests and passions, and to discover new areas of learning and development. By allowing students to switch between different streams and levels of education, they can pursue their curiosity and creativity, and find their niche and purpose in life.

- It enables students to acquire multiple skills and qualifications that will enhance their employability and competitiveness in the global market. By enabling students to move between different streams and levels of education, they can gain a broad-based education that covers the arts, humanities, sciences, social sciences, sports, languages, and vocational subjects. They can also obtain specialized education that focuses on specific disciplines or domains. They can also combine different modes of learning such as formal, informal, online, offline, etc.

- It empowers students to take charge of their own learning and career paths. By providing students with more choices and opportunities to move between different streams and levels of education, they can exercise their agency and autonomy in making decisions that suit their needs and aspirations. They can also take advantage of the multiple entry and exit points that allow them to enter or exit the education system at different stages according to their circumstances.

Some examples of institutions that reduce the rigid boundaries between streams and levels of education, and facilitate horizontal and vertical mobility of students are:

- The National Education Policy (NEP) 2020 in India, which proposes a new curricular and pedagogical structure for school education, which is based on the principle of 5+3+3+4. This means that the school education will consist of five years of foundational stage (three years of pre-primary and two years of Grades 1-2), three years of preparatory stage (Grades 3-5), three years of middle
stage (Grades 6-8), and four years of secondary stage (Grades 9-12). This structure will replace the existing 10+2 system and will provide greater flexibility and continuity for students (56).

➢ The European Credit Transfer System (ECTS), which is a standardised system for comparing the study attainment and performance of students across Europe. ECTS helps students to transfer credits from one higher education institution to another within or across countries. ECTS also helps students to accumulate credits from different courses or programmes within or across institutions (57).

➢ The Open University in the United Kingdom, which is a distance learning institution that offers flexible courses and programmes for students who want to study at their own pace, place, and time. The Open University allows students to choose from a wide range of subjects and disciplines, and to combine them in various ways. The Open University also allows students to transfer credits from other institutions or from prior learning experiences (58).

These are some examples of how reducing the rigid boundaries between streams and levels of education, and facilitating horizontal and vertical mobility of students can be implemented in different contexts. However, there are many more possibilities and variations that can be explored by different institutions according to their context and capacity.

11. To encourage lifelong learning and continuous professional development of students:

To encourage lifelong learning and continuous professional development of students is one of the objectives of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This objective is based on the premise that the 21st century requires learners to keep updating their knowledge and skills according to the changing needs and demands of the society and the economy.

Some of the benefits of encouraging lifelong learning and continuous professional development of students are:

➢ It helps students to develop a positive attitude and a sense of curiosity towards learning, by providing them with opportunities to explore their interests and passions, and to discover new areas of learning and development.

➢ It enables students to adapt to the changing world and to cope with the challenges and opportunities that they may encounter in their personal, professional, and civic lives, by equipping them with relevant and adaptable skills and competencies.

➢ It empowers students to take charge of their own learning and career paths, by providing them with multiple choices and opportunities to enter or exit the education system at different stages according to their circumstances and aspirations.

➢ It enhances the well-being and happiness of students, by providing them with a sense of purpose, fulfillment, and achievement in their learning endeavors.

Some examples of institutions that encourage lifelong learning and continuous professional development of students are:

➢ The Open University in the United Kingdom, which is a distance learning institution that offers flexible courses and programmes for students who want to study at their own pace, place, and time. The Open University allows students to choose from a wide range of subjects and disciplines, and to
combine them in various ways. The Open University also allows students to transfer credits from other institutions or from prior learning experiences (63).

➢ To create awareness and acceptance among students, parents, teachers, employers, and society about the benefits and value of multidisciplinary and holistic education.

➢ The European Credit Transfer System (ECTS), which is a standardised system for comparing the study attainment and performance of students across Europe. ECTS helps students to transfer credits from one higher education institution to another within or across countries. ECTS also helps students to accumulate credits from different courses or programmes within or across institutions (62).

➢ The McKinsey Academy, which is an online learning platform that provides courses and programmes for professionals who want to enhance their skills and competencies in various domains such as leadership, management, strategy, innovation, etc. The McKinsey Academy also provides personalised feedback, coaching, mentoring, and peer learning opportunities for learners (64).

These are some examples of how encouraging lifelong learning and continuous professional development of students can be implemented in different contexts. However, there are many more possibilities and variations that can be explored by different institutions according to their context and capacity.

12. To create awareness and acceptance among students, parents, teachers, employers, and society about the benefits and value of multidisciplinary and holistic education.

To create awareness and acceptance among students, parents, teachers, employers, and society about the benefits and value of multidisciplinary and holistic education is one of the challenges and problems of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This challenge is based on the premise that there are many misconceptions, stereotypes, and prejudices about multidisciplinary and holistic education among various stakeholders, such as:

➢ Some students may think that multidisciplinary and holistic education is too broad, vague, or irrelevant for their future goals and aspirations. They may prefer to focus on a single stream or discipline that they think will give them more advantage or recognition in the competitive market.

➢ Some parents may think that multidisciplinary and holistic education is too risky, uncertain, or unconventional for their children's future prospects and security. They may prefer to guide or pressure their children to follow a traditional or conventional path that they think will guarantee them a stable or lucrative career.

➢ Some teachers may think that multidisciplinary and holistic education is too complex, difficult, or impractical to implement in their classrooms. They may prefer to stick to a fixed or standardized curriculum that they think will ensure them a smooth or easy teaching process.

➢ Some employers may think that multidisciplinary and holistic education is too general, superficial, or irrelevant for their workforce needs and demands. They may prefer to hire or train workers who have specific or specialized skills and qualifications that they think will ensure them a high or efficient performance.
Some society members may think that multidisciplinary and holistic education is too radical, disruptive, or threatening for their social norms and values. They may prefer to maintain or reinforce a hierarchical or segregated system that they think will ensure them a stable or harmonious order.

Some of the ways that educators can create awareness and acceptance among students, parents, teachers, employers, and society about the benefits and value of multidisciplinary and holistic education are:

- By providing evidence-based information and data that show the positive outcomes and impacts of multidisciplinary and holistic education on students' academic achievement, personal development, career readiness, civic engagement, etc. For example, the OECD has published a report that highlights the benefits of interdisciplinary learning for students.
- By showcasing success stories and role models of students, alumni, teachers, employers, etc. who have benefited from or contributed to multidisciplinary and holistic education in various domains and sectors. For example, the Ashoka University in India has featured some of its graduates who have pursued diverse and innovative careers after completing their liberal arts education.
- By organizing events and activities that involve students, parents, teachers, employers, etc. in experiencing and engaging with multidisciplinary and holistic education in various forms and modes. For example, the Krea University in India has hosted an online festival called Krea eXperience that showcases its interdisciplinary learning model through various sessions such as talks, workshops, performances, etc.
- By creating platforms and networks that facilitate dialogue and collaboration among students, parents, teachers, employers, etc. on issues and opportunities related to multidisciplinary and holistic education. For example, the International Baccalaureate (IB) has established a global community of schools, educators, students, alumni, parents, universities, employers, etc. who share their ideas, experiences, feedback, and solutions on interdisciplinary teaching and learning.

These are some of the ways that educators can create awareness and acceptance among students, parents, teachers, employers, and society about the benefits and value of multidisciplinary and holistic education. However, these ways are not exhaustive or prescriptive. Educators can adapt and modify them according to their context and capacity. The main goal is to provide students with a multidisciplinary and holistic education that prepares them for the challenges and opportunities of the 21st century.

13. To address the issues of equity, access, affordability, and inclusion for all students, especially those from disadvantaged backgrounds:

To address the issues of equity, access, affordability, and inclusion for all students, especially those from disadvantaged backgrounds, is one of the challenges and problems of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This challenge is based on the premise that there are many barriers and inequalities that prevent or limit the participation and success of some students in the education system, such as:

- Socio-economic factors, such as poverty, malnutrition, lack of resources, etc., that affect the availability and quality of education for some students.
- Geographical factors, such as distance, isolation, lack of infrastructure, etc., that affect the accessibility and convenience of education for some students.
➢ Cultural factors, such as language, religion, ethnicity, gender, etc., that affect the relevance and appropriateness of education for some students.

➢ Physical factors, such as disability, health, etc., that affect the suitability and adaptability of education for some students.

Some of the ways that educators can address the issues of equity, access, affordability, and inclusion for all students are:

➢ By providing adequate infrastructure, resources, and faculty for offering multidisciplinary and holistic education in all institutions. This can help to ensure that all students have equal opportunities to access and benefit from a high-quality education that covers a wide range of subjects and disciplines (65).

➢ By designing and implementing flexible and innovative curricula that cater to the diverse needs and interests of students. This can help to ensure that all students have equal opportunities to choose and pursue their interests and passions, and to develop their potential in various domains of life (65).

➢ By developing and maintaining high standards of quality and accreditation for multidisciplinary and holistic education programmes. This can help to ensure that all students have equal opportunities to achieve and demonstrate their learning outcomes and competencies in various disciplines (66).

➢ By creating a welcoming environment in which all diverse students can succeed. This can help to ensure that all students have equal opportunities to feel valued and respected in their learning communities, and to participate actively and meaningfully in their learning processes (66).

These are some of the ways that educators can address the issues of equity, access, affordability, and inclusion for all students. However, these ways are not exhaustive or prescriptive. Educators can adapt and modify them according to their context and capacity. The main goal is to provide students with a multidisciplinary and holistic education that prepares them for the challenges and opportunities of the 21st century.

14. Examples of inclusive education:

Inclusive education is a form of education that aims to include all students, regardless of their abilities, backgrounds, or needs, in the same classrooms and schools. Inclusive education values the diversity and uniqueness of each student and provides them with equal opportunities to learn and grow. Inclusive education also benefits the teachers, the parents, and the society, as it fosters a culture of respect, acceptance, and collaboration.

There are many examples of inclusive education around the world, as more and more countries are adopting this approach to education. Here are some of them:

➢ In India, the National Education Policy (NEP) 2020 is a comprehensive framework for transforming the Indian education system to meet the needs and aspirations of the 21st century. One of the key features of the NEP 2020 is to promote inclusive education for all students, especially those from disadvantaged backgrounds, such as students with disabilities, students from rural areas, students from minority groups, etc. The NEP 2020 proposes to provide adequate infrastructure, resources, and support for inclusive education in all schools and colleges. It also proposes to design and implement
flexible and innovative curricula that cater to the diverse needs and interests of students. It also proposes to create a welcoming environment in which all diverse students can succeed (71).

➢ In Singapore, the Yale-NUS College is a liberal arts college that offers a multidisciplinary and holistic education for its students. The Yale-NUS College has a diverse student body that represents over 70 countries and regions. The Yale-NUS College has a curriculum that covers six domains: literature and humanities; philosophy, politics and economics; mathematical computational and statistical sciences; physical sciences; life sciences; social sciences (72). The Yale-NUS College also provides various opportunities for students to engage in experiential learning, such as study abroad programmes, internships, research projects, etc. The Yale-NUS College also fosters a culture of dialogue and collaboration among students, faculty, and staff (73).

➢ In Canada, the New Brunswick Department of Education and Early Childhood Development has developed a policy framework for inclusive education that guides the implementation of inclusive education in all public schools in the province. The policy framework defines inclusive education as "a way of thinking and acting that demonstrates universal acceptance of, and belonging for, all students". The policy framework outlines the principles, goals, strategies, and indicators for inclusive education in New Brunswick. It also provides various resources and tools for teachers, administrators, parents, and students to support inclusive education in their schools.

These are some examples of inclusive education that you should know about. There are many more examples that you can find by searching on the web or reading some books or articles on this topic.

15. Benefits of inclusive education:

Some benefits of inclusive education are:

➢ It helps all students reach their full potential by providing a learning environment that meets each student’s individual needs. Inclusive education allows all students equal access to the general education curriculum, regardless of their abilities or disabilities. This approach helps all students develop their skills and competencies in various domains of life (74).

➢ It creates a culture of acceptance and understanding by bringing together all students, regardless of ability, in one learning environment. By doing so, inclusive education helps to break down the barriers that often exist between students with and without disabilities. This, in turn, fosters a sense of community and understanding amongst all members of the school community (74).

➢ It builds friendships and bonds between classmates by having all students in the same classroom, regardless of abilities. By doing so, classmates have the opportunity to get to know each other better. They can learn from one another, share experiences, and make friends. This can help to break down barriers and prejudice that may exist between different groups of people (75).

➢ It prepares students for life after school by allowing them to learn in various settings with different types of learners. By doing so, inclusive education helps students to adapt to the changing world and to cope with the challenges and opportunities that they may encounter in their personal, professional, and civic lives (75).

➢ It benefits the whole school community by enhancing the quality and effectiveness of education for all. By doing so, inclusive education helps to improve the academic outcomes, social skills, self-esteem, and confidence of all students. It also helps to reduce bullying and harassment in schools (75).
These are some of the benefits of inclusive education that you should know about. If you want to learn more about inclusive education, you can visit [this website] (74) or read [this document] (75).

16. **Students will have more freedom and flexibility to choose their subjects, courses, programmes, and careers according to their aptitude, interest, and potential:**

Students will have more freedom and flexibility to choose their subjects, courses, programmes, and careers according to their aptitude, interest, and potential is one of the benefits of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This benefit is based on the premise that the 21st century requires learners to have more choices and opportunities to pursue their interests and passions, and to develop their skills and competencies in a variety of domains.

Some of the ways that multidisciplinary and holistic education can provide more freedom and flexibility for students are:

- By offering a wide range of subjects and disciplines, such as the arts, humanities, sciences, social sciences, sports, languages, and vocational subjects. This can help students to explore their interests and passions, and to discover new areas of learning and development. For example, the University College London (UCL) has a bachelor of arts and sciences (BASc) degree that allows students to combine arts/humanities/social sciences with sciences/engineering/health sciences.

Students will have more freedom and flexibility to choose their subjects, courses, programmes, and careers according to their aptitude, interest, and potential is one of the benefits of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points. This benefit is based on the premise that the 21st century requires learners to have more choices and opportunities to pursue their interests and passions, and to develop their skills and competencies in a variety of domains.

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- By providing multiple entry and exit points that allow students to enter or exit the education system at different stages according to their circumstances and aspirations. This can help students to adapt to the changing needs and demands of the society and the economy, and to take charge of their own learning and career paths. For example, the National Education Policy (NEP) 2020 in India proposes that students will have multiple entry and exit options within this period (3 or 4 years), with appropriate certification – 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.
By facilitating horizontal and vertical mobility of students across streams and levels of education. This can help students to switch between different streams and levels of education according to their aptitude, interest, and potential. For example, the European Credit Transfer System (ECTS) is a standardised system for comparing the study attainment and performance of students across Europe. ECTS helps students to transfer credits from one higher education institution to another within or across countries.

These are some of the ways that multidisciplinary and holistic education can provide more freedom and flexibility for students. However, these ways are not exhaustive or prescriptive. Different institutions can adopt and modify them according to their context and capacity.

By providing multiple entry and exit points that allow students to enter or exit the education system at different stages according to their circumstances and aspirations. This can help students to adapt to the changing needs and demands of the society and the economy, and to take charge of their own learning and career paths. For example, the National Education Policy (NEP) 2020 in India proposes that students will have multiple entry and exit options within this period (3 or 4 years), with appropriate certification – 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.

By facilitating horizontal and vertical mobility of students across streams and levels of education. This can help students to switch between different streams and levels of education according to their aptitude, interest, and potential. For example, the European Credit Transfer System (ECTS) is a standardised system for comparing the study attainment and performance of students across Europe. ECTS helps students to transfer credits from one higher education institution to another within or across countries.

These are some of the ways that multidisciplinary and holistic education can provide more freedom and flexibility for students. However, these ways are not exhaustive or prescriptive. Different institutions can adopt and modify them according to their context and capacity.

17. Examples of multidisciplinary and holistic education:
Some examples of multidisciplinary and holistic education are:

- The Indian Institute of Technology (IIT) Madras, which has launched a new Bachelor of Technology (B.Tech) programme in Data Science and Artificial Intelligence (AI), which combines courses from mathematics, statistics, computer science, engineering, humanities, social sciences, management, law, ethics, etc. (80).

- The Indian Institute of Science (IISc) Bangalore, which has introduced a new four-year Bachelor of Science (B.S) programme in Research, which offers a broad-based foundation in natural sciences (physics, chemistry, biology), mathematics (including statistics), engineering (including computer science), humanities (including economics), etc. (81).

- The Ashoka University in Sonipat, which has established a liberal arts model of education that offers undergraduate degrees in arts (B.A) or science (B.Sc), with majors in various disciplines such as economics, history, psychology, physics, biology etc., along with minors in other disciplines such as philosophy, sociology etc. (82).
The Krea University in Sri City, which has envisioned an interdisciplinary learning model that offers undergraduate degrees in arts (B.A) or science (B.Sc), with majors in various disciplines such as economics, history etc., along with concentrations in other disciplines such as data science etc. (83).

These are some examples of multidisciplinary and holistic education that are being offered or planned by some institutions in India. However, there are many more possibilities and variations that can be explored by different institutions according to their context and capacity. The National Education Policy (NEP) 2020 provides a broad framework and guidelines for enabling such transformations in the Indian education system.

18. Role of parents in promoting multidisciplinary and holistic education:

The role of parents in promoting multidisciplinary and holistic education is very important and significant. Parents are the first and most influential teachers of their children, and they can support and enhance their children's learning and development in various ways. Some of the ways that parents can promote multidisciplinary and holistic education for their children are:

- By encouraging their children to explore their interests and passions, and to discover new areas of learning and development. Parents can help their children to develop a positive attitude and a sense of curiosity towards learning, by providing them with opportunities to engage in various activities, such as reading, playing, drawing, singing, etc. Parents can also expose their children to different subjects and disciplines, such as the arts, humanities, sciences, social sciences, sports, languages, and vocational subjects, and help them to find connections and interrelations among them (84).

- By providing their children with authentic and meaningful learning experiences that involve real-world problems and phenomena that are relevant and meaningful to them. Parents can help their children to develop a deeper understanding of the concepts and principles of different disciplines, and to apply them to new contexts and situations, by involving them in various projects, such as gardening, cooking, recycling, etc. Parents can also support their children's learning by providing them with resources and tools, such as books, magazines, websites, apps, etc., that can enhance their knowledge and skills (85).

- By facilitating their children's collaboration and communication with peers, teachers, experts, and community members from diverse backgrounds, disciplines, and abilities. Parents can help their children to learn from different perspectives, cultures, experiences, and ways of thinking, by encouraging them to participate in various groups and clubs, such as scouts, sports teams, music bands, etc. Parents can also help their children to share their ideas, opinions, feedback, and solutions with others, by engaging them in conversations and discussions at home or in public spaces (85).

- By assessing their children's learning outcomes using multiple modes and criteria that reflect the multidisciplinary nature of the learning process. Parents can help their children to demonstrate their understanding of the content knowledge, skills, values, and attitudes of different disciplines, as well as their ability to integrate them across disciplines and apply them to real-world situations. Parents can also provide constructive feedback and praise to their children based on their efforts and achievements (85).

These are some of the ways that parents can promote multidisciplinary and holistic education for their children. However, these ways are not exhaustive or prescriptive. Parents can adapt and modify them...
according to their context and capacity. The main goal is to provide children with a multidisciplinary and holistic education that prepares them for the challenges and opportunities.

19. Technology help in involving parents in the learning process of their children:
Technology can help in involving parents in the learning process of their children in many ways. Technology can enable parents to communicate with teachers, access information and resources, monitor and support their children's progress, and participate in various activities and events. Here are some examples of how technology can help in involving parents in the learning process of their children:

➢ Technology can help parents to communicate with teachers through various channels, such as email, phone, text, video conferencing, etc. This can help parents to stay informed about their children's academic performance, behavior, attendance, homework, etc. It can also help parents to provide feedback, ask questions, share concerns, and appreciate teachers. For example, FASTalk is a text message–based family engagement tool that shares engaging, at-home learning activities via text messages in each family’s home language (89).

➢ Technology can help parents to access information and resources that can enhance their knowledge and skills to support their children's learning. For example, websites, apps, online courses, etc. can provide parents with tips, strategies, tutorials, etc. on various topics such as literacy, numeracy, science, social-emotional learning, etc. For example, the Smithsonian Science Education Center has developed a series of modules that engage students in solving real-world problems using science inquiry skills (90).

➢ Technology can help parents to monitor and support their children's progress by providing them with data and feedback on their children's learning outcomes and competencies. For example, online platforms, portals, dashboards, etc. can provide parents with reports, charts, graphs, etc. on their children's test scores, grades, assignments, etc. They can also provide parents with suggestions and recommendations on how to help their children improve or excel. For example, the National Scholarship Portal is a portal that provides a one-stop solution for students to apply for various scholarships offered by the central and state governments (91).

➢ Technology can help parents to participate in various activities and events that involve their children's learning. For example, social media, blogs, podcasts, etc. can provide parents with opportunities to share their ideas, experiences, stories, etc. with other parents, teachers, students, etc. They can also provide parents with opportunities to learn from others and join communities of practice. For example, MyGov is a platform that enables citizens to participate in the governance and development of the country (92).

These are some of the ways that technology can help in involving parents in the learning process of their children. However, these ways are not exhaustive or prescriptive. Different technologies may have different features and functions that can suit different needs and preferences of parents and teachers. The main goal is to use technology as a tool to enhance parent involvement in education and to foster partnerships between parents and teachers.
20. Challenges of involving parents in the learning process of their children:
Some of the challenges of involving parents in the learning process of their children are:

➢ Time and resource constraints: Some parents may not have enough time or resources to attend school events or support their children's learning at home. This may be due to factors such as work, household chores, childcare, transportation, etc. For example, one of the web search results states that "One of the biggest challenges is for parents to find the time to attend school events or support their children; this is especially true for families with low economic resources" (98).

➢ Lack of education and skills: Some parents may not have sufficient education or skills to help their children with their homework or learning activities. This may be due to factors such as low literacy, language barriers, lack of familiarity with the curriculum, etc. For example, one of the web search results states that "Parents’ lack of education and ability to provide support for homework may crucially affect child learning outcomes, especially during school closures" (95).

➢ Cultural and social differences: Some parents may not feel comfortable or welcome in the school environment or in communicating with the teachers. This may be due to factors such as cultural norms, religious beliefs, ethnic backgrounds, gender roles, etc. For example, one of the web search results states that "Involvement of minority parents has more impact than the involvement of parents from the cultural/ethnic majority" (97).

➢ Negative attitudes and expectations: Some parents may have low or unrealistic expectations of their children's academic performance or potential. This may be due to factors such as past experiences, stereotypes, prejudices, etc. For example, one of the web search results states that "Some parents may think that multidisciplinary and holistic education is too risky, uncertain, or unconventional for their children's future prospects and security" (96).

These are some of the challenges of involving parents in the learning process of their children that I found from the web search results. However, these challenges are not insurmountable. There are many ways that educators can overcome these challenges and create awareness and acceptance among parents about the benefits and value of multidisciplinary and holistic education. You can learn more about them by visiting [this website] (95) or reading [this document] (96).

21. Educator’s can What are some benefits of multidisciplinary and holistic education? What are some benefits of multidisciplinary and holistic education? overcome these challenges:
Educators can overcome the challenges of involving parents in the learning process of their children by using various strategies and methods that can address the barriers and enhance the benefits of parental involvement. Some of these strategies and methods are:

➢ Using technology to communicate with parents effectively and efficiently. Technology can enable educators to communicate with parents through various channels, such as email, phone, text, video conferencing, etc. This can help educators to keep parents informed about their children's academic performance, behavior, attendance, homework, etc. It can also help educators to provide feedback, ask questions, share concerns, and appreciate parents. For example, FASTalk is a text message–based family engagement tool that shares engaging, at-home learning activities via text messages in each family’s home language (101).

➢ Providing information and resources that can enhance parents' knowledge and skills to support their children's learning. Educators can provide parents with tips, strategies, tutorials, etc. on various
topics such as literacy, numeracy, science, social-emotional learning, etc. Educators can also provide parents with resources and tools, such as books, magazines, websites, apps, etc., that can enhance their children's knowledge and skills. For example, the Smithsonian Science Education Center has developed a series of modules that engage students in solving real-world problems using science inquiry skills (102).

➢ Building trust and partnership with parents by respecting their diversity and uniqueness. Educators can build trust and partnership with parents by communicating with them regularly and respectfully. Educators can also acknowledge and appreciate the diversity and uniqueness of each parent and child, such as their cultural norms, religious beliefs, ethnic backgrounds, gender roles, etc. Educators can also involve parents in various activities and events that celebrate their diversity and uniqueness. For example, the International Baccalaureate (IB) has established a global community of schools, educators, students, alumni, parents, universities, employers, etc. who share their ideas, experiences, feedback, and solutions on interdisciplinary teaching and learning (103).

➢ Creating a welcoming environment in which all diverse parents can succeed. Educators can create a welcoming environment in which all diverse parents can succeed by providing them with adequate infrastructure, resources, and support for parental involvement. Educators can also provide them with flexible and convenient options for parental involvement, such as online platforms, portals, dashboards, etc., that can enable them to access information and data on their children's learning outcomes and competencies. Educators can also provide them with multiple entry and exit points that allow them to enter or exit the education system at different stages according to their circumstances and aspirations (106).

These are some of the ways that educators can overcome the challenges of involving parents in the learning process of their children. However, these ways are not exhaustive or prescriptive. Educators can adapt and modify them according to their context and capacity. The main goal is to involve parents in the multidisciplinary and holistic education of their children.

22. Benefits of multidisciplinary and holistic education:
Some benefits of multidisciplinary and holistic education are:

➢ It helps students to develop a holistic and integrated understanding of the world and themselves, by exposing them to different perspectives, cultures, experiences, and ways of thinking. This can enhance their critical thinking skills, as they will be able to analyze, synthesize, evaluate, and apply information from various sources and disciplines. It can also enhance their creativity skills, as they will be able to generate new and original ideas and solutions by combining knowledge from different domains (107).

➢ It fosters critical thinking, creativity, communication, collaboration, and problem-solving skills among students, by challenging them to analyze, synthesize, evaluate, and apply information from various sources and disciplines. These skills are essential for personal and professional development, as well as for social and civic engagement (107).

➢ It enhances the employability and competitiveness of students in the global market, by equipping them with multiple skills and qualifications that are relevant and adaptable to different contexts and situations. Students who have a multidisciplinary and holistic education can cope with the changing
needs and demands of the society and the economy, and can take advantage of the opportunities and challenges that they may encounter (108).

- It encourages lifelong learning and personal growth among students, by providing them with opportunities to explore their interests and passions, and to discover new areas of learning and development. Students who have a multidisciplinary and holistic education can develop a positive attitude and a sense of curiosity towards learning, and can update their knowledge and skills continuously according to their circumstances and aspirations (109).

These are some of the benefits of multidisciplinary and holistic education that you should know about. There are many more benefits that you can find by searching on the web or reading some books or articles on this topic.

23. Challenges of promoting multidisciplinary and holistic education:
Some of the challenges and problems of promoting multidisciplinary and holistic education across all fields, with flexible curricula, creative combinations of subjects, and multiple entry and exit points are:

- Time and resource constraints: Some institutions may not have enough time or resources to design and implement multidisciplinary and holistic education programmes. This may be due to factors such as lack of infrastructure, faculty, funding, etc. For example, one of the web search results states that "Schools need to equip themselves with experienced staff who are capable of delivering such an approach and ensure they have the necessary resources" (113).

- Lack of education and skills: Some educators may not have sufficient education or skills to teach and assess multidisciplinary and holistic education programmes. This may be due to factors such as low literacy, language barriers, lack of familiarity with the curriculum, etc. For example, one of the web search results states that "Parents' lack of education and ability to provide support for homework may crucially affect child learning outcomes, especially during school closures" (111).

- Cultural and social differences: Some students and parents may not feel comfortable or welcome in a multidisciplinary and holistic education environment. This may be due to factors such as cultural norms, religious beliefs, ethnic backgrounds, gender roles, etc. For example, one of the web search results states that "Involvement of minority parents has more impact than the involvement of parents from the cultural/ethnic majority" (113).

- Negative attitudes and expectations: Some students and parents may have low or unrealistic expectations of multidisciplinary and holistic education programmes. This may be due to factors such as past experiences, stereotypes, prejudices, etc. For example, one of the web search results states that "Some parents may think that multidisciplinary and holistic education is too risky, uncertain, or unconventional for their children's future prospects and security" (112).

These are some of the challenges and problems of promoting multidisciplinary and holistic education that I found from the web search results. However, these challenges are not insurmountable. There are many ways that educators can overcome these challenges and create awareness and acceptance among students and parents about the benefits and value of multidisciplinary and holistic education. You can learn more about them by visiting [this website] (111) or reading [this document] (112).
(24) How can educators overcome these challenges:

Educators can overcome the challenges of promoting multidisciplinary and holistic education by using various strategies and methods that can address the barriers and enhance the benefits of multidisciplinary and holistic education. Some of these strategies and methods are:

- Using technology to design and implement multidisciplinary and holistic education programmes effectively and efficiently. Technology can enable educators to create flexible and innovative curricula that cater to the diverse needs and interests of students. Technology can also enable educators to deliver and assess multidisciplinary and holistic education programmes through various modes and media, such as online platforms, portals, dashboards, etc. For example, the Indian Institute of Technology (IIT) Madras has launched a new Bachelor of Technology (B.Tech) programme in Data Science and Artificial Intelligence (AI), which combines courses from mathematics, statistics, computer science, engineering, humanities, social sciences, management, law, ethics, etc. (119).

- Providing training and support for educators to teach and assess multidisciplinary and holistic education programmes. Educators can provide training and support for educators to enhance their knowledge and skills to teach and assess multidisciplinary and holistic education programmes. Educators can also provide them with resources and tools, such as books, magazines, websites, apps, etc., that can enhance their teaching and assessment practices. For example, the Health Education England has developed a toolkit that provides guidance and resources for implementing multidisciplinary team (MDT) working in health care settings (121).

- Building trust and partnership with students and parents by involving them in the planning and implementation of multidisciplinary and holistic education programmes. Educators can build trust and partnership with students and parents by communicating with them regularly and respectfully. Educators can also involve them in various activities and events that showcase the benefits and value of multidisciplinary and holistic education programmes. For example, the Ashoka University in Sonipat has established a liberal arts model of education that offers undergraduate degrees in arts (B.A) or science (B.Sc), with majors in various disciplines such as economics, history, psychology, physics, biology etc., along with minors in other disciplines such as philosophy, sociology etc. (120).

- Creating a welcoming environment in which all diverse students and parents can succeed. Educators can create a welcoming environment in which all diverse students and parents can succeed by providing them with adequate infrastructure, resources, and support for multidisciplinary and holistic education programmes. Educators can also provide them with flexible and convenient options for multidisciplinary and holistic education programmes, such as multiple entry and exit points, horizontal and vertical mobility, etc. (121).

These are some of the ways that educators can overcome the challenges of promoting multidisciplinary and holistic education. However, these ways are not exhaustive or prescriptive. Educators can adapt and modify them according to their context and capacity. The main goal is to provide students with a multidisciplinary and holistic education that prepares them for the challenges and opportunities of the 21st century.
25. Role of employers in promoting multidisciplinary and holistic education:

The role of employers in promoting multidisciplinary and holistic education is very important and significant. Employers are the key stakeholders and beneficiaries of the education system, as they provide the opportunities and challenges for the graduates and professionals who have acquired a multidisciplinary and holistic education. Employers can support and enhance the multidisciplinary and holistic education of their current and potential employees in various ways. Some of the ways that employers can promote multidisciplinary and holistic education are:

➢ By recognizing and rewarding the skills and competencies that are developed through a multidisciplinary and holistic education, such as critical thinking, creativity, communication, collaboration, problem-solving, etc. Employers can acknowledge and appreciate the value and relevance of these skills and competencies in various domains and sectors, such as engineering, management, health care, etc. Employers can also provide incentives and opportunities for their employees to further develop and demonstrate these skills and competencies in their work. For example, Google has a culture of innovation that encourages its employees to pursue their passions and interests, and to work on projects that are multidisciplinary and holistic (123).

➢ By providing training and development programmes that are multidisciplinary and holistic in nature, such as online courses, workshops, seminars, etc. Employers can provide their employees with opportunities to update their knowledge and skills according to the changing needs and demands of the society and the economy. Employers can also provide their employees with opportunities to learn from different perspectives, cultures, experiences, and ways of thinking, by involving experts, mentors, peers, etc. from diverse backgrounds, disciplines, and abilities. For example, McKinsey Academy is an online learning platform that provides courses and programmes for professionals who want to enhance their skills and competencies in various domains such as leadership, management, strategy, innovation, etc. (124).

➢ By creating a work environment that is conducive to multidisciplinary and holistic learning and working, such as flexible work arrangements, collaborative work spaces, project-based work teams, etc. Employers can create a work environment that allows their employees to work in various settings with different types of learners and workers. Employers can also create a work environment that fosters a culture of dialogue and collaboration among their employees, by encouraging them to share their ideas, opinions, feedback, and solutions with others. For example, the Tata Group has a vision of being a global leader in multiple businesses that are interconnected by a common purpose (125).

CONCLUSION:

Above are some examples of how multidisciplinary and holistic education can be implemented in India. However, there are many more possibilities and variations that can be explored by different institutions according to their context and capacity. The NEP 2020 provides a broad framework and guidelines for enabling such transformations in the Indian education system.

Technology can be a powerful enabler for achieving the vision and goals of the NEP 2020. However, technology is not a substitute for human interaction and guidance. Therefore, technology should be used judiciously and appropriately to complement and supplement the efforts of teachers and educators.
Some of the examples of digital initiatives in India that you should know about. There are many more initiatives that are being implemented or planned by the government and the private sector to make India more digitally advanced.

The achievements of Digital India programme that you should know about. There are many more initiatives and projects that are being implemented or planned by the government and the private sector to make India more digitally advanced.

Some examples of how multidisciplinary and holistic education can be implemented in India. However, there are many more possibilities and variations that can be explored by different institutions according to their context and capacity. The NEP 2020 provides a broad framework and guidelines for enabling such transformations in the Indian education system.

Examples of how encouraging lifelong learning and continuous professional development of students can be implemented in different contexts. However, there are many more possibilities and variations that can be explored by different institutions according to their context and capacity.

The ways that educators can create awareness and acceptance among students, parents, teachers, employers, and society about the benefits and value of multidisciplinary and holistic education. However, these ways are not exhaustive or prescriptive. Educators can adapt and modify them according to their context and capacity. The main goal is to provide students with a multidisciplinary and holistic education that prepares them for the challenges and opportunities of the 21st century.

These are some of the ways that educators can address the issues of equity, access, affordability, and inclusion for all students. However, these ways are not exhaustive or prescriptive. Educators can adapt and modify them according to their context and capacity. The main goal is to provide students with a multidisciplinary and holistic education that prepares them for the challenges and opportunities of the 21st century.

The policy framework defines inclusive education as "a way of thinking and acting that demonstrates universal acceptance of, and belonging for, all students". The policy framework outlines the principles, goals, strategies, and indicators for inclusive education.

The multidisciplinary and holistic education can provide more freedom and flexibility for students. However, these ways are not exhaustive or prescriptive. Different institutions can adopt and modify them according to their context and capacity.

Parents can promote multidisciplinary and holistic education for their children. However, these ways are not exhaustive or prescriptive. Parents can adapt and modify them according to their context and capacity. The main goal is to provide children with a multidisciplinary and holistic education that prepares them for the challenges and opportunities of the 21st century.

Technology can help in involving parents in the learning process of their children. However, these ways are not exhaustive or prescriptive. Different technologies may have different features and functions that
can suit different needs and preferences of parents and teachers. The main goal is to use technology as a tool to enhance parent involvement in education and to foster partnerships between parents and teachers.

Some of the ways that educators can overcome the challenges of involving parents in the learning process of their children. However, these ways are not exhaustive or prescriptive. Educators can adapt and modify them according to their context and capacity. The main goal is to involve parents in the multidisciplinary and holistic education of their children.

These are the challenges and problems of promoting multidisciplinary and holistic education that I found from the web search results. However, these challenges are not insurmountable. There are many ways that educators can overcome these challenges and create awareness and acceptance among students and parents about the benefits and value of multidisciplinary and holistic education.

Some of the ways that educators can overcome the challenges of promoting multidisciplinary and holistic education. However, these ways are not exhaustive or prescriptive. Educators can adapt and modify them according to their context and capacity. The main goal is to provide students with a multidisciplinary and holistic education that prepares them for the challenges and opportunities of the 21st century.

Creating a work environment that is conducive to multidisciplinary and holistic learning and working, such as flexible work arrangements, collaborative work spaces, project-based work teams, etc. Employers can create a work environment that allows their employees to work in various settings with different types of learners and workers. Employers can also create a work environment that fosters a culture of dialogue and collaboration among their employees, by encouraging them to share their ideas, opinions, feedback, and solutions with others.

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