Revitalizing India's Education System: A Pathway to National Development
An-Overview

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Abstract: The Indian education system is a complex and diverse system that has evolved over the centuries, with influences from different civilizations, religions, and cultures. The Indian education system has made significant progress in expanding access and improving the quality of education, it still faces several challenges. In recent years; the government has introduced several initiatives to address these challenges, such as the National Education Policy 2020, which aims to make education more inclusive, accessible, and effective. Despite the challenges, the Indian education system has produced several world-class scholars, scientists, and leaders, and remains a critical component of India's economic and social development. In this paper an overview of the Indian education system, its merits, de merits, National Education Policy 2020 and few recommendations are discussed that may be useful to the intellectual community and educators at different levels.

Keywords: India Education system, New Education Policy 2020, Rashtriya Madhyamik Shiksha Abhiyan, National Skills Qualifications Framework (NSQF), etc.

1 Introduction
India has a diverse education system that caters to the needs of its large population. The education system in India is divided into three categories: primary education, secondary education, and higher education [1]. Primary education in India starts at the age of 6 and continues until the age of 14. The primary education system is managed by state and local governments. The curriculum includes basic reading, writing, and arithmetic skills, along with subjects like social studies, science, and languages. Primary education in India is free and compulsory for all children between the ages of 6 and 14 [2]. Secondary education in India is from the ages of 15 to 18 and is divided into two stages: Lower Secondary Education and Upper Secondary Education. The lower Secondary Education stage is from the ages of 15 to 16 and the upper Secondary Education stage is from the ages of 17 to 18 [3]. The curriculum includes subjects such as mathematics, science, social sciences, and languages. At the end of upper Secondary Education, students take a national board examination called the Central Board of Secondary Education (CBSE) or the Indian Certificate of Secondary Education (ICSE). Higher education in India is offered by universities, colleges, and institutes. It includes undergraduate, postgraduate, and doctoral programs. The Indian higher education system is one of the largest in the world, with over 900 universities and 40,000 colleges [4]. The most popular courses for higher education in India are engineering, medicine, management, and law.
Overall, the Indian education system has made significant progress in recent years. The government has taken several initiatives to improve the quality of education, such as the Right to Education Act-2009 [5], which guarantees free and compulsory education to all children between the ages of 6 and 14 [2,5]. However, there are...
still challenges such as a high dropout rate, inadequate infrastructure, and unequal access to education, which need to be addressed to ensure that all students have access to quality education.

2 Background of Indian education systems

The history of education in India dates back to ancient times, with the country being home to some of the world's oldest universities such as Takshashila and Nalanda[6]. The education system in India has evolved over the centuries, with influences from different civilizations, religions, and cultures. Here is an overview of the history of the Indian education system:

Ancient Education: Education in ancient India was primarily imparted through the gurukul system, where students lived with their teachers and learned through a process of observation, discussion, and practical application. The subjects taught included philosophy, theology, mathematics, medicine, astronomy, and literature[7].

Medieval Education: During the medieval period, education in India was influenced by Islamic traditions, with the establishment of madrasas that focused on religious education and Arabic language. The Mughal emperors also established schools and colleges for the study of art, music, and literature[8].

Colonial Education: The British colonial rule in India introduced the modern education system, with the establishment of universities, colleges, and schools that focused on English language, science, and technology. However, the education system was designed to create a class of English-educated Indians who could serve as clerks and administrators in the British colonial government[9].

Post-Independence Education: After India gained independence in 1947, the government focused on expanding access to education and making it more inclusive. The government introduced several reforms, such as the establishment of the University Grants Commission (UGC) and the introduction of free and compulsory primary education [10].

Recent Developments: In recent years, the Indian education system has undergone several reforms to improve the quality of education and address the challenges faced by the system. The government has introduced initiatives such as the Rashtriya Madhyamik Shiksha Abhiyan (RMSA) to improve secondary education, the National Skill Development Corporation (NSDC) to provide vocational training, and the National Education Policy (NEP) 2020 to address the changing needs of the education system[11-13].

It is understood that the history of the Indian education system is a long and diverse one, with influences from different civilizations and cultures. The system has undergone several changes over the centuries, and while there are still challenges, the government's initiatives and the active involvement of educators and students can help to make the Indian education system more inclusive, accessible, and effective.

2.1 Primary Education System

The primary education system in India is an important component of the country's education system. It is the foundation of a child's academic journey and plays a crucial role in their overall development. Here is an overview of the Indian primary education system presented:

Structure: The primary education system in India typically comprises of classes 1 to 5, with children usually starting school at the age of 6[14]. The curriculum includes subjects such as language, mathematics, science, social studies, and moral education.

Medium of Instruction: In India, the medium of instruction at the primary level can vary based on the state or region. Most states use the regional language as the medium of instruction, while some use Hindi or English.

Implementation: The primary education system in India is implemented by both the central and state governments[15]. The government is responsible for the establishment and maintenance of government-run schools, while private schools also offer primary education.

Challenges: Despite the efforts of the government, the primary education system in India faces several challenges such as inadequate infrastructure, a shortage of trained teachers, high dropout rates, and poor quality of education.

Government Initiatives: The government of India has taken several initiatives to improve the primary education system. Some of these initiatives include the Sarva Shiksha Abhiyan (SSA)[16], which aims to provide free and compulsory education to all children between the ages of 6 and 14, and the Mid-Day Meal Scheme, which provides free meals to children in government-run schools.

Role of Parents: Parents also play a crucial role in the primary education system in India. They are responsible for ensuring that their children attend school regularly, complete their homework, and participate in extracurricular activities.
Inference, the primary education system in India is an essential component of the country's education system. While there are challenges, the government's initiatives and the active involvement of parents can help to overcome these challenges and provide quality education to every child in India.

2.2 Secondary Education System
The secondary education system in India is an important component of the country's education system. It provides students with an opportunity to pursue their academic and career goals and prepares them for higher education and employment. Here is an overview of the Indian secondary education system:

Structure: The secondary education system in India comprises of classes 6 to 10, with children typically starting secondary school at the age of 11[17]. The curriculum includes subjects such as language, mathematics, science, social studies, and vocational education.

Medium of Instruction: In India, the medium of instruction at the secondary level can vary based on the state or region. Most states use the regional language as the medium of instruction, while some use Hindi or English.

Implementation: The secondary education system in India is implemented by both the central and state governments. The government is responsible for the establishment and maintenance of government-run schools, while private schools also offer secondary education.

Examination System: Secondary education in India is marked by several high-stakes board examinations, such as the Central Board of Secondary Education (CBSE) and the Indian Certificate of Secondary Education (ICSE) examinations. These exams play a significant role in determining a student's future academic and career prospects.

Challenges: The secondary education system in India faces several challenges such as inadequate infrastructure, a shortage of trained teachers, and poor quality of education.

Government Initiatives: The government of India has taken several initiatives to improve the secondary education system. Some of these initiatives include the Rashtriya Madhyamik Shiksha Abhiyan (RMSA)[18], which aims to provide universal access, retention, and quality education at the secondary level, and the National Skills Qualifications Framework (NSQF)[19], which aims to provide vocational education and skill development to students.

Role of Parents: Parents also play a crucial role in the secondary education system in India. They are responsible for ensuring that their children attend school regularly, complete their homework, and participate in extracurricular activities.

It is understood that the secondary education system in India is an essential component of the country's education system. While there are challenges, the government's initiatives and the active involvement of parents can help to overcome these challenges and provide quality education to every child in India.

2.3 Higher Education System
The Indian higher education system is one of the largest education systems in the world [20], with more than 1000 universities and 40,000 colleges [24] offering a diverse range of academic programs to students. It is governed by the University Grants Commission (UGC), which is responsible for maintaining the standards of higher education in India[23]. Here is an overview of the Indian higher education system discussed:

Structure: The Indian higher education system is divided into two main categories: undergraduate (UG) and postgraduate (PG) programs [25]. UG programs typically include three-year bachelor's degrees, while PG programs include two-year master's degrees and research-based doctoral degrees.

Universities: India has both public and private universities, with the majority being public institutions funded by the government [26]. There are also specialized institutions such as the Indian Institutes of Technology (IITs), Indian Institutes of Management (IIMs), and Indian Institutes of Science Education and Research (IISERs) that offer specialized undergraduate and postgraduate programs in science, technology, engineering, and management.

Accreditation: The UGC is responsible for accrediting universities and colleges in India based on a range of factors, including infrastructure, faculty quality, and academic standards [27]. Accreditation is important for students to ensure that they are receiving quality education and have access to job opportunities after graduation.

Curriculum: The Indian higher education system is known for its emphasis on theoretical knowledge and rote learning. However, there has been a recent push towards more experiential and interdisciplinary learning to better prepare students for the changing job market.

Challenges: The Indian higher education system faces several challenges such as inadequate infrastructure, a shortage of qualified faculty, out-dated curriculum, and a lack of research and innovation.

Government Initiatives: The government of India has taken several initiatives to improve the higher
education system, such as the Rashtriya Uchchatar Shiksha Abhiyan (RUSA)[28], which aims to improve access, equity, and quality of higher education, and the Study in India program, which aims to attract foreign students to study in India.

It is understood that the Indian higher education system is diverse and complex, with several challenges and opportunities. While there is scope for improvement, the government's initiatives and the active involvement of universities, faculty, and students can help to overcome these challenges and make the Indian higher education system a world-class education system.

2.3.1 Strengths and Weaknesses of Engineering Education System

Engineering education is a vital component of any country's development and progress. The education system provides students with the necessary knowledge and skills to design, develop, and maintain various technological systems. As the world advances and evolves, so must engineering education. In this article, an attempt is made to explore the engineering education system and discuss its strengths, weaknesses, and potential improvements.

Hands-on Learning: Engineering education places a strong emphasis on practical learning, allowing students to apply theoretical concepts to real-world problems. This approach ensures that students are well-prepared to enter the workforce and tackle real-world challenges.

Interdisciplinary Learning: Engineering education encourages interdisciplinary learning, which promotes collaboration and innovation. Students have the opportunity to work with peers from different backgrounds, such as business, law, or medicine, to develop comprehensive solutions to complex problems.

Focus on Technical Skills: Engineering education provides students with a solid foundation in technical skills such as computer programming, mathematics, and physics. These skills are essential in today's technology-driven world and are in high demand by employers.

Weaknesses of Engineering Education system may be as follows: Lack of Diversity: Engineering education is often criticized for its lack of diversity, with a significant gender and ethnic gap[29]. This issue is mainly due to a lack of representation, biased hiring practices, and outdated stereotypes that prevent individuals from pursuing engineering careers. Outdated Curriculum: Engineering education often struggles to keep up with the latest technological advances, leading to a curriculum that is outdated and not reflective of current industry needs. The curriculum needs to be flexible and constantly updated to stay relevant and prepare students for the future.

Insufficient Soft Skills Training: Engineering education typically focuses on technical skills, neglecting soft skills such as communication, teamwork, and leadership. These skills are crucial in today's workplace and should be emphasized more in engineering education.

2.3.2 Development in education system

The primary education system in India has several challenges that need to be addressed to ensure that all children have access to quality education. Here are some tips to improve the primary education system in India:

Increase government spending on education: The government needs to allocate more funds towards education to improve the quality of education in government schools. This can be achieved by increasing the budget allocation for education and ensuring that the funds are used effectively. Improve teacher training: Teachers are the backbone of the education system, and they need to be trained adequately to provide quality education. The government should invest in teacher training programs to enhance the teaching skills of the educators. Promote technology-enabled learning: Technology can be used to improve the quality of education in primary schools. The government should promote the use of technology-enabled learning methods to provide interactive and engaging learning experiences for children. Focus on early childhood education: Early childhood education is critical to a child's development, and it is essential to provide quality education during this phase. The government should focus on improving early childhood education by investing in teacher training, providing adequate infrastructure, and promoting play-based learning. Improve infrastructure: Many government schools in India lack basic infrastructure such as classrooms, toilets, and drinking water facilities. The government should invest in improving the infrastructure of schools to provide a conducive learning environment for children. Involve parents and the community: Parents and the community play a vital role in the education system. The government should involve parents and the community in decision-making processes and
encourage their participation in school activities. It is essential to address these challenges to ensure that all children have access to quality education, which is critical for the growth and development of the country.

2.3.3 Progress in engineering education system

The higher education system in India is facing several challenges, which need to be addressed to provide quality education and enhance the employability of graduates. Here are some tips to improve the higher education system in India:

- **Promote Diversity and Inclusion:** Engineering education needs to become more inclusive and diverse by addressing issues such as bias, stereotypes, and lack of representation. This can be achieved by creating a welcoming environment that supports and encourages underrepresented groups to pursue engineering careers.
- **Incorporate More Interdisciplinary Learning:** Engineering education should expand its interdisciplinary approach, encouraging collaboration across different fields to develop comprehensive solutions to complex problems.
- **Update Curriculum Regularly:** Engineering education should be flexible and constantly updated to reflect current industry needs and technological advances. This will ensure that students are well-prepared for the future workforce.
- **Emphasize Soft Skills:** Engineering education should place more emphasis on developing soft skills such as communication, teamwork, and leadership. These skills are essential in today's workplace and will help students become well-rounded professionals.
- **Increase funding:** The government needs to allocate more funds towards higher education to improve the quality of education in universities and colleges. This can be achieved by increasing the budget allocation for higher education and ensuring that the funds are used effectively.
- **Enhance research and development:** Research and development are critical to the growth and development of the country. The government should invest in research and development to promote innovation and entrepreneurship.
- **Improve faculty quality:** The quality of faculty is essential for the delivery of quality education. The government should focus on attracting and retaining quality faculty by providing them with adequate salaries, training, and development opportunities.
- **Encourage industry-academia collaboration:** Collaboration between academia and industry can help bridge the gap between theoretical knowledge and practical skills. The government should promote industry-academia collaboration by providing incentives and opportunities for collaboration.
- **Promote skill-based education:** The higher education system should focus on providing skill-based education to enhance the employability of graduates. The government should collaborate with industry to identify the skills required in the job market and develop courses accordingly.
- **Improve infrastructure:** The infrastructure of higher education institutions needs to be improved to provide a conducive learning environment for students. The government should invest in improving the infrastructure of universities and colleges.

It is essential to address these challenges to provide quality education, enhance the employability of graduates and promote the growth and development of the country. In conclusion, the engineering education system plays a critical role in preparing students for the future workforce. While it has its strengths, weaknesses, and potential areas for improvement, the ultimate goal is to produce highly skilled and innovative professionals who can drive the progress of the world. By addressing these challenges, we can ensure that engineering education remains relevant and prepares students for the challenges of the future.

3.0 Current role of Professors in the higher education standard

Professors and teachers play a critical role in improving the higher education standard in India. Here are some ways in which they can contribute to improving the higher education system:

- **Delivering quality education:** Professors and teachers must deliver quality education to students. They need to be well-versed in their subject and must be able to communicate the concepts effectively.
- **Encouraging research:** Professors and teachers should encourage students to take up research and explore new areas of study. They can guide students in identifying research topics and help them in conducting research.
- **Promoting innovation:** Professors and teachers should promote innovation and entrepreneurship among students. They can encourage students to develop new ideas and provide them with the necessary resources and support to turn their ideas into reality.
- **Fostering critical thinking:** Professors and teachers should encourage students to think critically and develop analytical skills. They can promote a culture of debate and discussion in the classroom, which will help students develop their critical thinking abilities.
- **Mentoring students:** Professors and teachers can act as mentors to students and provide
guidance on academic and personal matters. They can help students in identifying their strengths and weaknesses and provide them with advice on career choices. Collaborating with industry: Professors and teachers can collaborate with industry to develop industry-relevant courses and provide students with exposure to real-world problems. This will help students in developing their skills and enhancing their employability. It can be summarized by saying that professors and teachers play a crucial role in improving the higher education standard in India. They need to be passionate about their subject and should have a desire to make a positive impact on the lives of their students. By delivering quality education, encouraging research, promoting innovation, fostering critical thinking, mentoring students, and collaborating with industry, they can contribute to the growth and development of the higher education system in India.

4.0 India New Educational Policy 2020

The National Education Policy 2020 [30] aims to transform the education system in India to make it more comprehensive, inclusive, and holistic. It provides a roadmap for the development of education in India for the next two decades.

Here are some key highlights of the National Education Policy 2020 are disused. Early Childhood Care and Education: The policy emphasizes the importance of early childhood education and care for the development of children's cognitive, social, and emotional skills. School Education: The policy focuses on a 5+3+3+4 structure of school education [31], where the first five years would be devoted to the foundational stage, the next three years to the preparatory stage, the next three years to the middle stage, and the last four years to the secondary stage. Multilingualism and Language Learning: The policy emphasizes the importance of multilingualism and encourages the learning of three languages, including the mother tongue, regional language, and English. Technology Integration: The policy promotes the integration of technology in education to improve access, quality, and equity. It emphasizes the use of digital resources, e-learning platforms, and educational technology to enhance teaching and learning. Higher Education: The policy aims to increase the gross enrolment ratio in higher education to 50% by 2035 [32]. It emphasizes the importance of multidisciplinary education, research, and innovation. Teacher Education: The policy aims to improve the quality of teacher education and training through a four-year integrated B.Ed. program. It emphasizes the importance of continuous professional development and teacher autonomy.

The National Education Policy 2020 has the potential to transform the education system in India and make it more inclusive, accessible, and relevant to the needs of the 21st century. Implementation of this policy will require a concerted effort from all stakeholders, including the government, educational institutions, teachers, parents, and students.

Conclusion

The Indian education system is vast and diverse, with a complex structure that reflects the country's cultural, linguistic, and regional diversity. The system is primarily divided into three levels: primary education (classes 1-5), secondary education (classes 6-10) and higher secondary education (classes 11-12). The education system is primarily administered by the central and state governments. The government provides free and compulsory education to all children between the ages of six and fourteen. However, despite significant improvements in recent years, there are still challenges in ensuring access to quality education for all students, particularly those from marginalized communities.

The Indian education system is known for its emphasis on academic achievement, particularly in the areas of science, technology, engineering, and mathematics (STEM). The country has a large network of technical and vocational institutions that provide training in various fields. One of the significant challenges facing the Indian education system is the lack of adequate infrastructure and resources. Many schools lack basic amenities like clean water, toilets, and libraries, which can hinder students' learning outcomes. Additionally, there is a shortage of qualified teachers, particularly in rural areas.

In recent years, the Indian government has implemented several initiatives to improve the quality of education and expand access to education for all. Some of these initiatives include the establishment of more schools and higher education institutions, the introduction of digital learning platforms, and the implementation of policies
to encourage enrolment and retention in schools. Overall, while the Indian education system faces several challenges, it also has many strengths and opportunities for improvement. With continued investment in education and a focus on expanding access and improving quality, India has the potential to create a robust and effective education system that can help its citizens thrive and contribute to the country’s development.

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Authors will ensure data transparency.

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