**The sky is not the limit**

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India succeeded in landing Vikram and Pragyan – its lander and rover from its spacecraft Chandrayaan-3 – on the little-explored south polar region of the moon on the late afternoon of August 23, 2023, thereby becoming the first country in the world to do so.

India has now joined the ranks of China, Russia and the US as a major space power. This is a huge step forward for the Indian Space Research Organisation (ISRO); India is now aspiring to spur investments in satellite-based businesses and private space launches, and the country’s younger generation of space engineers and entrepreneurs will receive a huge boost because of this success.

Last year, ISRO’s budget was only $1.5 billion, while India’s private space economy is already at a level of $6 billion, and it is expected to reach $25 billion by 2025.

India has always had a deep tradition of giving top priority to education and science since the days of Jawaharlal Nehru. Successive Indian governments recognized the importance of education, science, technology, and innovation as catalysts for socio-economic development.

The Right to Education Act, enacted in 2009, stands as one of the most transformative pieces of legislation in India’s educational history. It recognizes education as a fundamental right for children aged six to 14, aiming to provide free and compulsory education to all.

The law seeks to dismantle barriers that hinder children from attending school, such as poverty, discrimination, and social norms. Another important initiative launched in 2001 that has a transformative effect is the ‘Sarva Shiksha Abhiyan’ (SSA).

This initiative helps universalize elementary education and improve its quality. The SSA recognizes that education is a fundamental right and a potent tool for social and economic transformation.

The Midday Meal Scheme launched in India in the 1990s is another unique initiative that combines education and nutrition. It provides nutritious meals to school children, thereby addressing both malnutrition and increasing school attendance. The scheme has been a tremendous success in increasing school attendance, particularly among children from low-income families. Parents are more inclined to send their children to school when they are assured of a daily meal.

The National Policy on Education (NPE) of 1968 marked a significant turning point in India’s educational landscape. This policy laid the foundation for modernizing education in the country, with a strong emphasis on science and technology education. It led to the establishment of numerous technical institutes and research centres, contributing significantly to India’s scientific and technological progress.

Another important initiative of India is the ‘Rashtriya Madhyamik Shiksha Abhiyan’ (RMSA) aimed at enhancing the quality of secondary education in India. It helps improve infrastructure in government schools, including the construction of classrooms, science laboratories, libraries, and separate toilets for boys and girls. It also prioritizes teacher recruitment and training for secondary schools.

India has also given high priority to the improvement of colleges and universities. The ‘Rashtriya Uchchatar Shiksha Abhiyan’ (RUSA) scheme was launched in 2013. It is a critically important initiative aimed at providing funding to state universities and colleges to improve their infrastructure and academic quality.

In contrast, the operational budgets of universities of Pakistan have been frozen at about Rs65 billion, and they are withering away into low-level colleges before our eyes, as we helplessly watch their planned destruction. In India, however, RUSA has played a significant role in elevating the standards of higher education across the country.

The ‘Digital India Initiative’ launched in 2015, aims to harness the power of technology to transform education and focuses on expanding digital infrastructure, promoting digital literacy and enabling access to online educational resources. Initiatives like Digital India have played a crucial role in making education more accessible, especially in remote and underserved regions.

The National Digital Library (NDL) programme of India involves the creation of a comprehensive online repository of educational resources, including textbooks, research papers, and multimedia content. It provides free access to a vast collection of learning material, benefitting both students and educators.

I launched such a programme in Pakistan well before that of India when I was chairperson of the HEC back in 2004, which was very successful. The growth of online education platforms like Coursera, edX, and Khan Academy has democratized education. These platforms offer a wide range of courses and resources, allowing learners of all ages to acquire new skills and knowledge conveniently.

India has implemented numerous initiatives to foster innovation, research, and industry collaboration. The establishment of the Council of Scientific and Industrial Research (CSIR) in 1942 was a significant milestone in India’s pursuit of scientific and industrial excellence. The CSIR’s contributions to industrial research, particularly under the visionary leadership of Dr Mashelkar, have been immense. It has developed and patented several technologies and products that have had a transformative impact on various sectors, including pharmaceuticals, agriculture, and materials science.

The establishment of the Indian Institutes of Technology (IITs) has been a transformative initiative in India’s quest for technological excellence. The first IIT, IIT Kharagpur, was founded in 1951, and these institutions have since become prestigious centres for engineering and technological education and research. IITs are known for their rigorous academic programmes, world-class faculty, and state-of-the-art infrastructure.

Admission to IITs is highly competitive, and graduates are sought after by leading companies worldwide. Moreover, IITs have played a crucial role in nurturing entrepreneurial spirit and innovation. There are 23 IITs now in India, which are helping the country become a strong technology-driven knowledge economy.

India’s network of national laboratories and research centres has also played an important role in advancing scientific research, innovation, and technological development. These institutions span various scientific disciplines and have made significant contributions to India’s growth and development over the years. National laboratories such as the Bhabha Atomic Research Centre (BARC) have been instrumental in nuclear research and technology development.

The Defence Research and Development Organization (DRDO) is another prominent institution dedicated to research and development in defence and security technologies. The DRDO’s innovations have contributed to India’s defence capabilities, including missile systems, surveillance technology, and defence electronics.

There is much for Pakistan to learn from India. The most important lesson is that before planning to invest in agriculture, information technology or other areas, we must first build a nation, with integrity as the fundamental cornerstone of our character.

At the top of the list of our projects must be quality school education, with emphasis on character building, as that is where we face our biggest failure today. Our highest national priorities must then be in quality education, science, technology, and innovation. Today the nation stands at a precipice. A new visionary, technologically competent and honest leadership is the only hope now left for Pakistan.

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