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Bridging Traditions: Malaviya and the Integration of Science in Colonial India

NIRMALA SHAH

Department of History, Shyama Prasad Mukherji College for Women, University of Delhi, New Delhi 110 026, India
E-Mail: nirmala.shah10@gmail.com

ABSTRACT

This paper explores the remarkable contribution of Madan Mohan Malaviya in promoting and nurturing scientific education in colonial India. Malaviya made significant contributions not only in politics and society, but also in the field of science and technology. With his exceptional leadership and expertise, he made a significant and enduring impact in these fields. He played an important role in founding renowned institutions such as Prem Mahavidyalaya (1909) and Banaras Hindu University (BHU) in 1916, which have emerged as prominent centres for modern scientific education and research in India. This study delves into the initiatives undertaken by Malaviya, which successfully bridged the gap between traditional Indian knowledge systems and modern scientific thought. This created an environment that facilitated scientific exploration and progress. By promoting for a curriculum that incorporated both traditional and modern sciences, Malaviya not only empowered a generation of Indian scientists, but also had a crucial impact on the scientific landscape of modern India. Malaviya's impact on the field of science and his vision for a progressive India is commendable. This paper examines his educational policies, institutional initiatives, and personal commitment to promoting science education.

Keywords: Madan Mohan Malaviya, Education, Modern Science, Prem Mahavidyalaya, Banaras Hindu University.

1 Introduction

In India, at the present time, we are having a clash of civilisations. The willless East, having implicit faith in a preordained Destiny, has been assailed by a Faustian West, strong believer in Free Will, and

striving for the Infinite. The clash should result in the evolution of a new culture. “Pandit Madan Mohan Malaviya, a true representative of the older system believes in the possibility of this evolution and has founded an institution based on European models in the heart of the old system.” (M.N. Saha, 1932: 861).

Madan Mohan Malaviya (1861-1946) was a multi-faceted personality- a great educationist, journalist, social reformer, orator and leader who played a very important role in the Indian Independence movement. He holds a respectable position in the history of modern India and his contributions in different fields continue to inspire and are followed in the fields of education and industrial development of the country.

He was born on 25 December 1861 in Allahabad, North-Western Provinces to Pandit Brij Nath and Smt. Moona Devi. His father Pandit Brij Nath was a noted Sanskrit scholar. He did his early education in Hindi and Sanskrit, and then matriculation from District school, and higher education from Muir Central College in 1884.

The second half of the 19th century was a period of turmoil in the country. Malaviya had a significant role in the Indian National Congress, a widely recognised organisation with representation across India. He became its President four times and dedicated nearly a decade of his service as member in the United Provinces Council, Supreme Legislative Council, and Central Legislative Council. He played a crucial role in the establishment of the Hindu Samaj of Allahabad in 1880. It was a socio-political association focused on bringing Hindus from various castes and provinces together, advocating for vernacular education, and implementing social reforms. He also highlighted the importance of moral progress, religious instruction, and character development. Due to his significant contributions in the field of education and his involvement in the freedom movement, Pandit Malviya was posthumously awarded the prestigious Bharat Ratna, the highest civilian honour.

Malaviya, an ardent writer with a passionate personality, was also a prolific journalist. He promoted his views through journalism, contributing to leading newspapers and weeklies in both English and Hindi. For example, from 1924 until 1946, he served as chairman of the *Hindustan Times* and helped develop

the newspaper's Hindi edition. He was the founder of the English-language newspaper *The Leader*, the Hindi monthly *Maryada*, and the Hindi weekly *Abhyudaya* (Chaturvedi, 1974).

This paper attempts to understand the significant contribution made by Malaviya in bridging modern scientific education with traditional Indian knowledge. His significant contributions to the establishment of the Prem Mahavidyalaya and the Banaras Hindu University (BHU) played a crucial role in shaping the Indian education landscape, especially in the field of science. What were contributions of Malaviya in advancement of scientific education in India? How his forward-thinking approach helped spread techno-scientific education? What was his vision of blending traditional knowledge with modern science? What was the impact of his initiatives? These are some of the questions this paper seeks to answer.

2 Methodology

The study adopts content analysis method, which is mostly qualitative. The data for the research work was collected using primary sources like Malaviya's writings, contemporary newspaper, and secondary sources like research articles and books. Using these sources, the paper critically asses Malaviya's contributions in education, rethink old problems, and pose new issues of inquiry. Further, these were consulted with a view to examining his major interests during the period.

3 Historical Context

During the late 19th and early 20th centuries, India experienced significant socio-political changes and the emergence of a growing nationalist movement. The British colonial administration had set up an educational system with the aim of developing a group of individuals to serve as intermediaries for administrative needs. Nevertheless, this system neglected the advancement of scientific education and research. Historians such as Deepak Kumar (1995), B.R. Tomlison (1976), and Aparna Basu (1982) have argued that technical, vocational, and scientific education were neglected during the British rule. Instead, more emphasis was placed on the study of literature, politics, and philosophy. In light of this context, Indian leaders like Malaviya had a vision for an educational framework

that would bring about profound changes, empowering Indians through knowledge and nurturing a culture of scientific curiosity. Dwivedi (2010:1492) pointed out that Malaviya intended to generate national spirit through education and virtue, and to attain the economic progress of the country by combining teaching of science and technology with religion.

4 Malaviya and the Founding Vision of Prem Mahavidyalaya

Prem Mahavidyalaya, founded in 1909 in Vrindavan, Uttar Pradesh, holds a significant place in the history of Indian education. With a focus on serving rural populations, Prem Mahavidyalaya, one of the pioneering technical institutions in the country, became the first degree college to prioritise both traditional and scientific education. Raja Mahendra Pratap after visiting the western countries conceived the idea of a technical institution on national lines in vernacular language. Raja Mahendra Pratap was a freedom fighter, journalist, writer, revolutionary, social reformer and a philanthropist. For giving shape to his vision, he gave five villages from his jamindari with a net income of Rs. 33,000 per month to the institution (Singh, 2012: 183). The chief sources of income of the institution were income from the principality and donations (*Prem*, 3 March 1922). The foundation stone of the institution was laid by Madan Mohan Malaviya who was closely associated with it. Malaviya had a vision of creating an institution that would cater to the educational needs of marginalised communities, thus fostering social equality and empowerment.

The integration of modern scientific subjects with traditional disciplines was the vision of Malaviya. He strongly advocated for the importance of scientific education in driving national progress and ensuring its availability to people from all sections of society. This approach contributed to the development of a generation of well-educated individuals who possessed the necessary knowledge and skills to make a positive impact on India's progress. However, J.P. Misra (2016: 42) highlighted that Malaviya’s efforts were oriented towards emphasising Hindu scriptures for laying the foundation of a modern technical civilization in India. Further, Harinatha Reddy (2020: 53-54) pointed out that Malaviya stressed on vernacular medium of

education and English as the second language so that students can learn and understand concepts in a better way.

At Prem Mahavidyalaya, the curriculum was meticulously designed to reflect a strong focus on scientific education, in line with Malaviya's persistent commitment to academic excellence. The Prem Mahavidyalaya provided practical education that empowers youths to become independent and self-reliant. It had two departments- School and workshops (*Prem*, 25 February 1922). Some of its important works included providing education of practical character like industrial education, commercial education (short-hand, type-writing and book-keeping), and literary education (Hindi, Urdu, English, Sanskrit, Geography, Maths, History, Sciences) (*Prem*, 23 December 1922). This comprehensive approach aimed to provide students with a balanced education that combined the wisdom of traditional knowledge with the rigour of modern scientific investigation. The significance of experiential learning and practical training in scientific education was emphasised. Laboratories were set up with the aim of offering students the opportunity to carry out experiments and actively engage in scientific research. This focus on experiential learning intended to cultivate an attitude of inquisitive and critical thinking among students.

Prem Mahavidyalaya's commitment to offering scientific education has been beneficial for rural students, who previously faced limited access to such opportunities. By prioritising education in the sciences, the college has enabled students from rural backgrounds to pursue an array of careers in this field. As a result, these students have been able to contribute to the socio-economic development of their communities in a meaningful way. Malaviya's dedication to science education cultivated a spirit of self-reliance and ingenuity among rural communities. Students with a strong background in technical and scientific field possess the necessary skills to address local challenges, including enhancing agricultural productivity, health, and improving sanitation, through the application of scientific methods and principles.

5 Creating an Educational Legacy: Malaviya and BHU

The great life-work of Mr. Malaviya was the foundation of the Hindu University at Benaras, where scientific, technical and

industrial education could be combined with religious instruction and classical culture through the medium of Sanskrit and Indian vernaculars[66]. "Mr. Malaviya was an ardent advocate of the Swadeshi movement. As far back as 1881 he was one of the promoters of the *Deshi Tijarat Company* at Allahabad, took an active part in the Indian Industrial Conference held at Benaras in 1905, and was a member of the Indian Industrial Commission appointed by the Government of India in May 1916" (*TOI*, 13 November 1946).

In 1916, Malaviya founded BHU with a forward-thinking vision of creating an institution that would serve as a centre for education, research, and innovation. BHU was established with the aim of offering an education that combines traditional Indian knowledge systems with modern scientific disciplines. Malaviya strived to provide a comprehensive education that would equip students with the essential abilities and understanding to make meaningful contributions to India's development. Emphasising on the need of residential university and importance of science education, in an address in Bombay, Malaviya said in January 1910, "…at present only theoretical science was taught in the Indian Universities, but that was not sufficient. It was essential that for the industrial, religious and intellectual regeneration of the people of this country applied science should also be taught, and that could only be done by means of teaching and residential universities" (*TOI*,10 January 1916).

For providing holistic approach to education, the university provided a diverse range of courses, encompassing both traditional subjects like Sanskrit and philosophy, as well as modern sciences such as physics, chemistry, and engineering. This approach ensured that students received a well-rounded education, preparing them to make meaningful contributions to the country's development. Habib and Raina (2007: xxix) pointed out that in the realm of sciences, this inspired search for alternate sciences and the possible episteme within the scientific culture of modern India.

Malaviya's educational policies were progressive for their time. He was a strong advocate of the inclusive education, highlighting the significance of studying science and technology, and cultivating a culture of research and innovation. The emphasis on

research showcased a dedication to furthering scientific knowledge in India. For example, when the Department of Chemistry was opened in BHU in 1921, N. N. Godbole (1932: 901), Professor of Chemistry pointed out that "the Department proposes to teach and also manufacture and sell if possible all that it manufactures. The manufacture is to be carried on… not with the object of making money but with the definite object of creating the necessary confidence in the minds of those whom it teaches and trains and in equipping them with the necessary data to start their own concerns." Emphasising the pedagogy of modern science, Habib and Raina (2007: xxxi) emphasized that science teachers had to contend with local cultural conceptions and knowledge forms. These opened up areas for a dialogue between modern science and the existing knowledge systems that generated interesting experiments both in pedagogy and in science and was to enrich both.

The dedication of Malaviya to scientific education went beyond just designing the curriculum. He played a key role in promoting scientific research and fostering collaboration between Indian and international scientists. Under his guidance, BHU flourished as a centre for scientific research, drawing scholars from all corners of the country and the globe. The vision for technological advancement in science can be glanced from the efforts of Malaviya to attract brilliant scholars from across the world like V.V.Narlikar, S.S. Bhatnagar, U.C.Nag, A.B.Dhruva, Ganesh Prasad, Birbal Sahni to guide students (Dwivedi, 2010: 1492). Malaviya had a global perspective when it came to inviting individuals of outstanding ability. In order to accomplish this goal, he engaged in correspondence with renowned scientists such as Ernest Rutherford, Sir Arthur Eddington, and others. Malaviya made significant efforts in 1935-36 to convince Albert Einstein, to visit India and BHU. In 1940, it is likely that Einstein wrote to Malaviya, expressing his interest in contributing to this esteemed university. Unfortunately, the plan could not be realised due to bureaucratic procedures (Dwivedi, 2010).

Malaviya's contributions were instrumental in the establishment of scientific societies and institutions that fostered the exchange of research and collaboration among scientists. These efforts

played a crucial role in encouraging a culture of scientific inquiry among the Indians and strengthening the country's scientific prowess.

6 Integration of Traditional Knowledge with modern science

“Malaviyaji wanted the youth of India to benefit from an integrated education that incorporated modern scientific knowledge, practical training, ethical standard and the study of the arts. He wanted to blend the best of Indian learning with the modern scientific ideas of the West.” (Singh, 2012-13: 185).

Malaviya's ability to bridge traditional Indian knowledge systems with modern science was one of his most remarkable achievements. He believed that traditional knowledge held immense value and could complement modern scientific practices. Malaviya aimed to create a unique educational model that blended progressive thinking and creativity with a strong foundation in Indian culture, merging these two realms of knowledge.

Prem Mahavidyalaya was founded due to the dedicated efforts of Raja Mahendra Pratap and Malaviya to initiate educational reform in India. The work at this college were closely tied to his later efforts in founding BHU in 1916. Both institutions had a common goal of blending traditional Indian knowledge with modern scientific education. Further, Prem Mahavidyalaya served as a model for Malaviya's educational initiatives at BHU. The college's success in providing quality education to rural students reinforced Malaviya's conviction in the significance of education that is accessible and inclusive. The principles and practices implemented at the institution had a profound influence on BHU, moulding its curriculum and educational policies on a larger scale.

The influence of Prem Mahavidyalaya on science education in the Indian educational system endures. The college set an example for other institutions by highlighting the importance of providing inclusive and high-quality scientific education to people from all walks of life. Malaviya's vision of incorporating traditional and modern knowledge remains highly regarded and influential in contemporary educational discourse. One of the objects of the BHU

was "to promote learning and research generally in arts and science in all branches" (Malaviya, 1909: 3).

It is important to note that by 1914 a 'science-technology-industry' connection was beginning to be forged (Raina and Habib, 2004: 76). Thus, Indian science was coming to its own and a close connection between the nationalist desire and urge for acquisition of modern scientific knowledge was becoming louder. However, Meera Nanda (2003: 152, 158) critiques the Hindu revivalist approach to science education, highlighting that while Hindu nationalist's efforts to promote Indian knowledge system were progressive in some respects, they risked diluting the empirical rigor of science.

Academic writings on Malaviya reflect the diversity of his contributions to Indian education, politics, religion, and nationalism. These paved the way for extensive debate, mostly regarding his efforts to integrate traditional knowledge with modern science and his role as a Hindu nationalist. Scholars have critically observed both the positive impacts of his vision and its limitations, especially in terms of scientific rigor, religious inclusivity, and global engagement. Further by endorsing indigenous knowledge alongside Western science, Malaviya nurtured a generation of scholars and scientists who were more connected to their cultural roots.

7 Conclusion

Madan Mohan Malaviya was an outstanding figure in modern Indian history. During his lifetime, he became a role model in political arena, journalism, 'but it was as a scholar and an educationalist that will not be effaced as long as the youth of India treads the path of higher education' (*TOI*, 14 Nov 1946). His contributions in science education are still relevant in India in the 21st century as his ideas and the institutions founded and developed by him are still contributing to the development of the nation.

Thus, Malaviya's vision was not just about science but about science that could serve humanity and the upliftment of society. His educational philosophy included both ethical and moral aspects, emphasising that students should develop character alongside their intellectual abilities. Science was viewed not only

in terms of technological progress but also as a means for human development. Although Malaviya did a lot in the field of education, he was engaged in varied aspects of national life and as a result he could not give as much attention as he could have. He had vibrant ideas but he could have done more.

Moreover, prominent scientists of the 20th century like Srinivasa Ramanujan, J.C.Bose, M.N. Saha, S.N.Bose, C.V. Raman and many others asserted their intellectual potential in science. In the Malaviya Commemoration Volume (1932), many eminent personalities including scientists like J.C. Bose, C.V. Raman, N.C.Nag, M.N.Saha, N.N.Godbole, N.R.Dhar, M. Visvesvarayya and many others wrote high about Malaviya and his contributions in varied fields including science. When India attained independence, many new institutions of excellence were established which emphasised on 'the best of the East and of the West' (*TOI,* 8 February 1913) as envisioned by Malaviya. Many BHU graduates played a pivotal role in shaping modern India- Devendra Lal, U.R.Rao, J.V. Narlikar, C.N.R. Rao, T.V. Ramakrishnan, to name a few (Dwivedi, 2010).

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