Education and Science in Colonial India

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Abstract

This paper discusses the paradigms of colonial India's science and educational growth. During eighteenth-nineteenth century, the history of colonial India shows a close connection between research, education and imperialism spectacularly; my goal is to highlight the existence, direction and value of this association through some illustrative examples from a variety of scientific and educational works. India's history of science must also be an Indian history, not just an Indian projection of western science and education. Pre-colonial periods indicate that Ancient and Medieval periods were India's own science, technology and medicine, subject themselves to broad internal variations, historical pressures, cultural traditions, and their legacies for the next period of British rule.

1. Introduction: The British arrived in India with the glorious mission – the society mission in hand. Britain's Indian rule lasted two centuries or so. They did so with great goodwill as the British fled. The basic education is for a society, and this paper demonstrates why and how that status has arisen in Indian history since the colonial period [7]. The first is to look at the position and the place of indigenous education, both in pre-colonial time and as co-existence alongside the 'formal' colonial education method. Educationists term the 'philosophy' of education – the more academic debates centred on the relationship between Colonization and Education. To obtain a round-picture, the 'technology' of education and the application of educational philosophy and the child as a beneficiary of education are also relevant to consider [10].

The history of science especially influences the social nature and cultural diversity of science, technology and medicine in India [9], which, long before experiencing a longer period of colonial rule, had an existing scientific and technical legacy of its own [6]. Though the history of research, technology and medicine was still viewed as accounts of Western exploration and diffusion in general history, the fact that not all such tales can be conflicted with one account of European accomplishment or sage of a European business in the broader world became more readily recognisable than a century or two ago [8]. In colonial India in the 18th, 19th and early 20th centuries, science has been especially understandable in circumstances in which science past sometimes seems inseparable from imperialism's history [11].

2. Science in Colonial India:

When the British East India Company became a ruling power, it had little interest in educating Indians at all. They opposed this policy after several years. This was recognised first by William Jones who established in 1784 in Calcutta the Royal Asian Society in Bengal (RASB). Britain's economic ambitions to explore and seize vast Indian wealth, manage them, and conquer culminated inappropriate policies being devised by British Colonial authorities [13] [6]. The colonisers were well conscious of the value of science

as a very successful colonisation and control tool. This notion of science was intimately connected to empire needs. Hindu School was opened in Calcutta on 20 January 1817 (Presidency College in 1856). Now Hindu top-class boys have paid for English language schooling with their own pocket money [7]. The college obtained government subsidies from 1924 and science classes began. At the beginning of the new science the organisation started with a geographical, zoological and botanical survey. In India, astronomy was the company's first modern science [11]. Geographical knowledge of India was first required. The Peninsular India Geological Survey began in 1800. These efforts were only for the British colonizer's colonial intent.

3. Reception of Modern Science in Colonial India:

In the aftermath of the British invasion, new scientific innovations and methods appeared in India but encountered three key limitations. Next, the implantation scale and the extent of use is limited to the rulers' policies. Secondly, the teaching of science has been adopted simply to deliver knowledge in different fields rather than as a medium of academic and social change. Thirdly, in English science has been adopted. It then became fragmented rather than playing the role played by modern science in Europe. It did not engage with various strata of society, but strongly relied on government for its development, becoming an integral part of rulers' policies. Yet a section of India's intellect was assumed to embody a fresh attitude to life and nature in British society, which lay hope in India's eventual emancipation. Scientific institutions such as the Hindu College (1816), Delhi College (1825), Aligarh Scientific Society (1864), Bihar Scientific Society (1868), and the Indian Science Culture Association (1876) are the most widely-known in this sense. Many of these institutions were founded in the 2nd half of the 19th century in order to create opportunities for the Indians to undertake science education, not only by popularising them but also democratic zing scientific know-how in India [1].

4. Medical, Industrial Art and Engineering:

It was born in 1763 and soon followed Madras and Mumbai. The Medical Service was established. British Government. British Government. The native medical institution of Calcutta was established, but a few years later, the government. The closed. Bentinck named in Bengal in 1833 a committee to improve the Native Medical Institution and develop a system of good management and better education. The Committee recommends that the Native institution be abolished along with the classes in medicine at the Madras and Sanskrit College, and established a new university, strictly devoted to Western medicine and English only [12]. These suggestions were accepted by Bentinck and replaced the new medical school in Calcutta in 1835 by the Native Medical Institute. Created in 1835 by Madras Medical College and opened in Bombay in 1945 by Grant Medical College.

After the mid-19th century, the Indian policy leaders were very early in the game that their English education was incomplete. In 1854, Rajendra Lal Mitro, who was then the first Indian President of the Asian society, wrote that practical training would be a true way of overcoming the obstacles to change produced by a system of old and the least trained classes of industrial art cultivation. R. L. Mitra recently set up a modern art society in which the Indians could gain practical knowledge.

On 27 May 1841 FRS was elected on Ardaseer Cursetjee of Bombay's Marine Engineer. Cursetjee was part of the Wadia shipbuilders' famous Parsi Family. (7) The recently introduced stream machinery was of concern to him as was the case in shipbuilding, and luckily his interest converged with that of the company. From December 1839 to November 1840, the corporation funded his one-year visit to the UK, where he visited numerous royal dockyards and private foundations. In the British State, he was chosen to work in the company's steam factory in Bombay as chief engineer and inspector of the machinery. The British had a reasonable schedule. When the upper Ganga canal was dug, Roorkee founded an engineering college. A forest school was opened in Dehra Dun when wood was required for the railways. It is no surprise that the British stressed that higher education is not a removal of mass analphabets but a higher education among the chosen Indians [4]. The Sahib had completely justified its confidence in the Baboos. It was an Indian, Seebchundar Nandy, who kept the crucial link between Bombay and Calcutta alive during the upheaval in 1857.

5. Educational Policies during the British Colonial Rule:

Discussing the educational policies that took effect in India under the British would entail subdividing its rich history to seven significant periods: Phase 1 (1758-1812), Phase 2 (1813-1853), Phase 3 (1854-1900), Phase 4 (1901-1920), Phase 5 (1921-1947), Hartog Committee (1929), and Sargeant Plan of Education (1944).

- **Phase 1 (1758-1812):** Between 1758 and 1812, the British East India Company was less involved in Indian education, with the exception of that of Calcutta Madrasah, which Warren Hasting established in 1781 in Islamic law and other associated subjects, and the Sanskrit College, which Jonathan Duncan set up in Varanasi in 1792, with a special emphasis on Hindu philosophy and law. The British East India Corporation regarded these schools as their source of professional labour to assist the company in law-and-order management.

- **Phase 2 (1813-1853):** Since Christian missionaries and humanitarians were heavily pressurised to promote and facilitate a modern education system in India, the charter law of 1813 had provided for the company to invest one lakh of rupees per year in promoting well-educated Indians and in promoting modern science in India. The charter Act of 1813 provided for the company. Two scandals influenced the educational system of the time. Suppose this will concentrate on the advancement of modern Western studies or the enrichment of the conventional Indian way of learning, whether it would be the use of English or mother tongues as teachers in schools and colleges expanding Western learning. He was with the blessing of M.R. Lord William Bentinck. Roy who resolved these disputes in 1835 put out English as the instruction medium.

- **Phase 3 (1854 – 1900):** The 1854 Wood's Dispatch for Education was named after former Chairman of the Control Board, Sir Charles Wood and the first Indian Secretary of State. This is recognised in India as the English Education Magna Carta, and it is thus a central strategy in Indian

Subcontinent at the beginning of modern education. Sir WW Hunter was named head of the committee by Lord Ripon. Education expectations were dim due to lack of funding, considering the growing numbers of colleges and schools.

- **Phase 4 (1901-1920):** In 1902, under the direction of Thomas Raleigh, a lawyer in the Viceroy Executive Board, Lord Curzon applied to the Universities Commission. The Act also proposed improvements to the universities' internal structure. The Syndicate should be granted constitutional approval in which teachers are properly represented and the terms and conditions of the university affiliation are specifically defined. The Act has stated that in the legislation drawn up by members of the Senate, the government has a certain restriction of authority and the governor general in the council has the power to determine the geographical boundaries of the Universities (Ministry of Human Resource Development 1990). Another body, the Saddler Commission, was named. The Commission found that there was a discrepancy between government intentions and the real creation of Indian vernacular languages and mother-tongue education.

- **Phase 5 (1921 – 1947):** In 1930, almost all Indian provinces introduced the Primary Education Compulsory Act. The Actions indicate that this responsibility is delegated to municipal organisations. They are responsible for imposing education in order to fulfil the education expenses. Financial support was promised by regional governments. The provision of compulsory schooling usually between the ages of six and seven will only favour them (Sharma and Sharma 2004). The Compulsory Education Acts and renovated nationalism have now gained momentum for mandatory education extension. Women have requested their educational rights under the leadership of Mahatma Gandhi. Other reforms include further growth, an improvement in the number of colleges, a higher level of tertiary education, an inter-university board institution, and the launch of inter-college and university activities.

6. Hartog Committee (1929): Sir Philip Hartog was then appointed to the Dacca University vice chancellor in 1921 as a Sadler Board member. The commission is known as the Hartog Committee because it was at the top of this commission. The mission is to examine and present findings in September 1929 in every part of the Indian educational system [3].

The Committee found several deficiencies and difficulties in primary education: the majority of Indians are village employees, insecurity, analphabetic, conservation, and the absence of teacher instruction, the use of stereotypical and unscientific methods for teaching, and a lack of legislative intervention in schools. The Commission also established many issues with primary education. The Committee jointly proposed that well-trained and highly skilled teachers be selected and that teacher service be provided with protection.

7. Sargeant Plan of Education (1944): Under the Sargeant Education Programme, nursery education should strive to provide social experience and educate children in general. The general education programme does not stress these people. The schema indicated that the beginning of kindergarten schools is the biggest explanation for the scheme's success. These schools can be visited by children aged three to

six years of age. In rural areas, nurseries should be connected to junior primary schools whereas nursery and junior primary schools in India's urbanised regions could be autonomous and segregated from each other. College should be free of charge for pre-primary students.

8. Indigenous education:

The discussion over "indigenous" or non-western education has centred on the origin, scale and loss of indigenous pre-colonial education. Pre-colonial schooling was seen as insufficient and wanted to be supplemented by modern skills from the West [6]. In the other hand, Indian nationalists point to a prosperous structure that the British have deliberately ruined. The source base is incredibly thin, but it reveals a system of pathway villages, in which the students were trained by an all-powerful guru and advanced by reading, numeracy, accounting, and writing. Historically, there is the risk that these processes may be over-glorified and it is important to bear in mind that all ways of intelligence dissemination contain its kind of aggression towards societies that it finds inferior. In the early nineteenth century, the lessons' substance was based in the Anglicist-Orientalist controversies, ultimately leading to the Anglican win, but not absolute. This imposition of higher Western knowledge represents the civilisation mission of taking Indian children into the Western conceptions of morals, Western scientific values and subjects relevant to British liberal education, including history and literature [5]. A consistent trend echoed by all, from theoreticians today to historic players as numerous as Curzon and Gandhi, was the need for more realistic or professional preparation. The language platform has been problematic, but its results are hard to measure, as it is much easier to concentrate on the success stories of high school students, while Bellenoit claims that English is badly understood and thus has no impact [15].

9. Teaching of Natural and Social Science

The rapid spread of liberal education among the indigenous citizens of India since then, the strong accomplishments of Native government borrowers, native students in private colleges, the progress of medical schools and the needs of an increasing population in Europe and India, led us to believe that now is the time for the State. 'The founding in January 1857 of the Universities of Calcutta, Bombay and Madras marked the beginning of modern higher education in India.' There were named 'universities of the first century.' At first, the government only performed the examination function. The applicants had to bear expenses. The Benares Hindu University, Allahabad University, Aligarh Muslim University etc. is the "second generation universities." The immediate model of all subjects for the Allahabad and Benaras Hindu colleges was the University of Calcutta, from which they became offshoots. From the 1890s to the mid 1920s, Allahabad was a collaborator and examiner, not a university for instruction. By 1914, 13 M.A. is present. Colleges, Nagpur and Lahore, inspected and authorised among them, were admitted by eleven before the B.A. Normal, Meerut and Indore included. College libraries were limited, with much fewer funds. The first college library was built in 1915. English, geography, culture, law, etc were the most

'common' subjects offered. Students were more intrigued by the arts classes. 'The trend of rhetorical and rational studies in England was then a convenient model for Indian adaptation.' Science was not taught in the university, however, so it was also mandatory in colleges. Science was not only supposed to change India materially but also mentally and morally. Bernal saw research as a discipline that had three objectives: psychological, rational and societal. David Arnold speaks about the non-static Indian science, a cross-regional collaboration in the world of technology. Even after the fall of the Mughal Empire, "the decent nature of India's political and cultural system made it possible for several scientific, technological and medical centres to flourish simultaneously, but not exclusively, in the 18th Century, and for each to develop his own unique characteristics." Dharampal also attests this aspect. "The artificial ice making appears to have been unknown in Britain until then." He also provides the explanation of inoculation and surgical plastic surgery. Raja Jayasinha's Benares observatory, iron and steel development in many areas of India, etc., demonstrates that India already has a highly established research, technical and medical sector in India. By the 18th century, though, research and technology continued to fall behind. David Arnold to acknowledges that he sought to superimpose his modernity on India with the colonial State's coming. However, he indicated that information sharing for the Indians might have been easier. He also talks about the East India Corporation's agenda to encourage research, medicine, and technology in India. "The British have enjoyed the science company; it would be excessive to suggest that they governed it." Most of the scientific effort conducted under the reign of the East India Corporation has taken place beyond the agencies of the State. Many early accounts on Indian geology were published not as part of their official duties by the military and military surgeons but as a consequence of personal curiosity and cross-country marches. The servants of the Company who decided to follow research interests remained heavily dependent on the Court of Administration's permission and funding or the General Governor in India. Still, except for a couple like Wellesley, they had no interest. "European scientists have rarely retired to the country." While they showed interest in science, they aimed primarily at promoting revenue collection in the recently captured areas of South Asia. Study in India provided details on more research in England. Museums were set up to display the study carried out in India. It also became "a way to establish colonial science's self-esteem." In addition, the Asian Community became involved in the research. Journals such as the Asian Society Journal, Gleanings, The Calcutta Natural History Journal, etc. were launched. However, the readership was significantly poor. It cannot be seen, though, that the Indians were "totally isolated from the scientific undertaking of that era." One such was Balshastri Jambhekar. S. Irfan Habib argues that people like Ramchandra, Syed Ahmad Khan, Munshi Zakaullah and others "went to make Indian vernacular cultures more sensitive to modern sciences." Ramachandra claimed that communicating science in the local language would make it possible for Indians to contribute to science growth. Imdad Ali founded the Bihar Science Society in 1868. Munshi Zakaullah's books have been translated. "His first book on mathematics, called Tuhfatul-Hisab, was published in 1852 and is considered one of the first books of modern Western mathematics in any Indian language."

10. Technical Education

"Sir Charles Wood's 1854 Educational Despatch first mentioned the idea of providing technical education to the Indian people by the government." However, the schools and colleges that taught astronomy, vocational studies and specialised schools were mostly ignored. And when the law was granted to the Crown, the situation shifted nothing. However, this time, nationalist politicians and local committees continued to place their desire for Indian technical education. In 1901 the Shimla Conference adopted a range of resolutions on technical education and the Ootacamund Industrial Conference of 1908 also proposed that the Engineering College of Madras be enlarged. The indigenous people often believed that professional training and study were required. Jamshedji Nusserwanji Tata conceived the Indian Institute of Research in 1896. Also "as late as 1919, senior officials argued that a college of engineers would be sufficient and that the output of around a hundred civil engineers would suffice." The shortage of work was one of the key factors for the sluggish increase of engineering education. Much of the Indian engineers were hired to PWD. And other departments, such as railways, were controlled by European and Anglo Indians. In the 1921 Census Survey, 1.315 officers from Europe and England were registered against 262 Indians. Between 1870 and 1914, "a connection between science and technology and industry began to develop." The call from the indigenous for upgrading in science and engineering courses has been increasingly loud. The persistent demands made by popular leaders such as W.C Bonnerji, Anandamohan Bose, Chandavarkar, Madan Mohan Malviya, and so on have helped the British government create leverage them. Sir Harcourt Butler also felt that industrial education was a strong solution to political instability. In comparison, the start of the First World War stimulated the condition of Indians. The Dhanbad Mining School was opened in 1921, the Lucknow School of Arts and Handicrafts opened in 1912, and the Lahore Mayo College of Art opened. In Aparna Basu's view, the government began involved in the opening of technical colleges after 1920.

11. Social Science

Nearly all colleges had the section of social sciences. This was since, compared to the pricey department of natural science, social sciences were comparatively cost-effective because one would not need to invest in laboratories and facilities. Things like History, English and Law became commonly common among students as the government's employment varied from civil services to the lowest rank in the hierarchy of government jobs. Students were more popular with literature and humanities. They became a gateway to Western-born philosophies. In reality, it became trendy to research literature during the Bengal Presidency. People liked to quote Shakespeare, Mill, Comte, etc., to emphasise their thinking. Western analytical philosophers are the yard for checking one's potential and changing one's culture. The West educated Indian intelligentsia often liked to read the popular poets, who were necessarily treated as a key to self-correction.

12. Conclusions:

Early use of education and modern science in India has been sporadic, sullen and stimulated by local interest. Most were introduced into the main science architecture much later and have no modern significance. In comparison, the Indians remained unaffected. The research funded by the United Kingdom was field science precisely because of it. India's physical and cultural innovations all appeared, including geography, geology, botany, zoology, medicine, and even astronomy. In India, British politicians were not interested in science, but used to promote their interests. Whenever their practical needs directed a certain branch of research, it was based on this science. The work of research was also advanced. In the age of empire building, India was then annexed to the world scientific complex as a field station. Astronomy was the first Western technology to be adopted in India as a geographical and navigational aid. Physical technology has never been a part of colonial science. Missionaries met with the Indians and recorded their tacit knowledge to integrate the information into the main European system.

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