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Locating The ‘Two Cultures’ Theory In India Context

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Abstract

‘Two Culture’, a phrase and a theory only known to intellectuals working on the history and sociology of science and technology in Western Europe and North America should have crossed the boundaries of continents and should have become more popular throughout the world as it has addressed one of the core issues of the world i.e. lack of engagement between sciences literature. Charles Percy Snow or C.P Snow, a novelist and Physical Chemist in his Rede Lecture at Cambridge titled as Two Cultures in 1959 addressed this question for the first time. In this lecture, he has put forth his observations on the existing distance between scientists and literary intellectuals who are comparable in intelligence, identical in race, not grossly different in social origin, earning about the same income had almost ceased to communicate with each other and in intellectual life, they split into two polar groups (Snow, 1959). He is a novelist and scientist, and with his membership with both groups at a professional level and as well as a friend, he had greater access to two groups, their discussions, their views, and their opinions. He intentionally went for dinners of groups separately to understand how one is thinking about the other group. After observing these groups, he came to the conclusion that the gulf between literary intellectuals and scientists is the outcome of mutual incomprehension, hostility, and dislikes but most of it is a lack of understanding. They have distorted images of each other. C. P. Snow made these observations in Western society, particularly in the United Kingdom. Since Western Europe witnessed epistemological revolutions, not only in the United Kingdom but across Europe and North America the division between these two groups could be the same.

Keywords: two cultures, Charles Percy Snow, Post Colonial, Indian Context

1. Introduction

Most of the modern nations of Asia, Africa, and South America were once colonies of Western Europe, and modern education in these continents was introduced in the same pattern as in Western Europe. Scientists in colonies, whether colonial or native, would have views similar to that of metropolitan masters on science and on themselves as well with some exceptions. They would have the same views on literature and literary intellectuals. Scientists and literary intellectuals form opinions on their disciplines based on the nature of their disciplines which might have a certain amount of universality. However, the nature of the discipline alone may not solely be responsible for scientists for disliking literary intellectuals and vice-versa. In many social contexts, the social identity of the scientists and literary intellectuals would play determining role in the discipline itself. British scientists in India during colonial times, white scientists in the United States of America, Jewish scientists in Israel, and Brahmin scientists in India are more likely to form their opinions on their science and their status as scientists based on their social status rather than the discipline alone. Brahmins in India first to benefit from

Western modernity which was a package of a new culture that includes modern education in English, employment of modern institutions of administration, new methods of production, and so on. With their early access to education in English and knowledge, they reformulated the idea of knowledge. Their jump from Sanskrit to English for doing science forced them to disconnect from earlier local versions of knowledge but their interest in science could be located in Western modernity very easily. Very quickly they realized the need for getting acquainted with Western modern science and also understand that they need to redefine the image of science as Brahmin in India (Renny, 2020). The same is the case with male scientists against female literary intellectuals. In fact, for a long, male masculinity was found to be suitable for science and technology and femininity in medicine sciences and humanities, and literature as well. In other words, the social prestige of the scientist might work as a blockade to engage with the literary intellectuals than his/her science itself. In social contexts like India, upper-caste Brahmins make a natural claim to science as they believe that they are naturally intelligent, their intelligence quotient (IQ) is higher compared to the people from the lower caste. C.P. Snow's two cultures theory focuses less on the role of the social context. His understanding of the entire debate gives us the impression that scientists and literary intellectuals as individuals are independent of social contexts and his reference to both the groups belonging to the same race may not be true either in Britain or any other social context. In fact, in many societies, race, ethnicity, gender, and caste (in India) determine who and from what social identity becomes a scientist, engineer, social scientist, literary intellectual, and mechanic.

Functions of science, literature, and social science as means of satisfying curiosity, emotions, and behaviour respectively are socially constructed boundaries of these knowledge arenas. Scientists and engineers accuse literary intellectuals of myth-making, unrealistic (poetry, if not what is written in prose), and social scientists of being incapable of producing object knowledge or exact truth. In turn, literary intellectuals and social scientists accuse scientists and engineers of being arrogant about the utility of knowledge, of the disconnect with humanity, and, of producing knowledge that is destructive not only to humans but also to the planet at large. In the course of history, while literature had its high days (most of the ancient and medieval times), science and engineering took primacy from the scientific revolution, and from the eighteen-century social sciences have been carving space for themselves emerging as the third culture. However, the human, the human race's experience so far proved that it would be a disaster to prioritize one over the other. All three ought to reciprocate with each other.

In ancient and medieval times where religion was forcing the mind to express everything in theological terms, the realism of the Renaissance and scientific rationalism of the scientific revolution, and humanism of the Enlightenment forced literature to be secular and to be more on social realities, emotions, and sentiments. This does not mean that the literature has lost significance but acquired new purpose and functions. However, claims are made that in a context where science is dominating the thought process, literature, especially poetry would face rejection or become insignificant. The modern age did not see writers like Homer, Dante Alighieri, John Milton, Valmiki, William Shakespeare, Kalidas, etc. It is claimed that modern civilization is scientific as science overtakes, and literature is bound to lose significance (Madanpotra, 1973). The literature has not lost its significance after the science became dominant thought process with the scientific revolution in 1543. Though scientists dominated the world, is it not true that the world has failed to produce great literary figures and philosophers who could be placed in the literary intellectuals and social scientist category? From the 17th century to today, from Jane Austen to Stephanie Mayer, the world has witnessed the emergence of tall literary figures such Alexandre Dumas, Edgar Alle Po, Charles Dickens, Herman Melville, Jules Verne, Mark Twine, Oscar Wild, Jack London, Hermann Hesse, Virginia Wolf, James Joyce, Franz Kafka, Fernando Pessoa, Dale Carnegie, Agatha Christie, Ernest Hemingway, George Orwell, Ayan Rand, Albert Camus, Rabindranath Tagore, R. K. Narayan, Arunthathi Roy, Salman Rushdie, Nora Roberts, Mahasweta Devi, Vikram Seth, Prem Chand, Nirad C. Choudari, Mukul Raj Ananda and so on. These literary intellectuals have used all genres of literature to produce impactful literature. Science was seen as contradictory to literature and it saw an attack on the imagination of the poet and literary intellectuals.

2. Indian Social Context

India is a multicultural society. It is socially stratified based on the four Varna or Jati systems of Hinduism known as caste. Those falling outside the caste are labelled as outcasts or untouchables. Religiously too, India is divided into Hindu, Muslim, Christian, Buddhist, Jain, Anglo-India, and Parsi. Two major social factors that also determined social context are gender and class. Thus, caste, religion, class, and gender are the four prime factors that determine people's access to knowledge and education. In other words, academic professionals such as scientists, engineers, doctors, and literary intellectuals are not independent of their religion, caste, race, class, ethnicity, and gender. Caste is part of the Hindu culture and a major social culture that plays a dominant role in providing the needed strength for social segregation that is needed for the Hindu society to survive as it not only provides that required strength to Hindu society alone but also consciously or unconsciously forces people from the other religions to locate themselves in the larger frame of the Hindu society. The existence of caste among Christians, Buddhists, and Muslims justifies the pervasiveness of the caste in India. In India, most of the scientists, engineers, and doctors belong to the upper caste among Hindus and the upper 'class' among people from other religions. But this class in actuality is caste which may, for many reasons, not read as such. Therefore,

In colonial times, when modern education was introduced, the pre-colonial Hindu society's norms which automatically were in place would allow the upper caste to benefit from modern education and restrict Sudras and untouchables from accessing it. Colonial education policy, though in its form might appear to be democratic or possess the ability of democratization of Indian education, the government's inability on investing or disinterest in fulfilling its objectives let the socially powerful grab the education that has social, political, cultural, and, economic value. British government went easy on Hindu social stratification and went with the belief that educating the upper caste would automatically result in the further taking care of the people at the bottom which is known as Downward Filtration Theory. The British government was wrong in understanding that the upper caste which was in a position to use the historical advantage to benefit from the British government's introduced English medium education would work as an agent to take education down to the bottom. It either misunderstood the Brahmin or their adherence to the caste system. After 1835, Macaulay Minutes' consequent changes in the education policy largely benefited the upper caste. Therefore, from the beginning of modern education to today, English medium education in which science was taught was for the upper caste, and vernacular medium education in which literature was taught was for Sudras. This did not go much of a change.

The upper caste, apart from benefitting from the government-sponsored English medium education, were also capable of accessing education offered in England, the mother country, education offered by the Christian missionaries, and, also were capable of organizing themselves into professional bodies. The Indian Association for the Cultivation of Science (IACS) in Bengal started by Mahendra Lal Sircar on 27th July 1876 was an association for the native scientists inspired by the national consciousness. It was, of course, created to counter the hegemony of the British scientists in India. Similarly, the Indian Institute of Science (IISc) in Bangalore conceived in 1896 and started in 1909 was another institute that was created to address the question of Indian science. However, IACS and IISc are not the same in their nature. While the earlier was started out of nationalist Swadeshism, the latter was started by the Government of India with the help of British scientists and with the patronage of the Mysore Princely state which gave land and the philanthropic help of Jamshedji Nussarwanji Tata. After the British were at the helm of the affairs from 1909 to 1935, C. V. Raman became the Director of the institute. From then on, the IISc has been under the dominance of the Brahmins. The same is the case with IACS too. However, from the beginning of the IA

CS, the contribution of the literary intellectuals is seeming to be visible. The foundation of the IACS, though primarily to promote science, in the Trustee Board, we see a combination of scientists and literary intellectuals, and, reformers. Mahendra Lal Sircar, Asuthosh Mukarjee, Jagadeesh Chandra Bose, Pramadhanath Bose were scientists, Father Eugene Lafnot, a Christian Priest and reformer, Pandit Iswar Chandra Vidyasagar and Kesab Chandra Sen, social reformers, philosophers and literary intellectuals were members of the Trustee Board of IACS. The IACS as an institution presents a different

picture contrary to what C. P. Snow observed in England in terms of engagement between scientists and literary intellectuals. The IACS as an example may not reflect the entire India. However, there is a visible difference between England and India. While C. P. Snow raises this complaint in the case of Western civilization in 1959, back in the 1870s, in India scientists and literary intellectuals seemed to be working together. Nationalism as a force was bring scientists and literary intellectuals together. It was in the effort of building the nation, scientific associations like IASC were started. Not all scientific and literary intellectuals were part of the project of nationalism, though. Even if they were, their coming together as scientists and literary intellectuals do not go beyond nationalism. Another major reason was that the Hindu upper caste have been domination Indian classical science and literature. The historical advantage worked in their favour to become experts both in science as well in literature.

In India, Brahmin is a scientist by the fortune of his/her birth and people from the rest of the castes/communities though could be scientists, they cannot claim that it is their forte like Brahmins do. During colonial and post-colonial times, science, engineering, and literature, for a long, have been dominated by the upper caste. Even today, science and engineering are monopolized by the upper caste. However, the idea of upper caste in colonial and post-colonial times is not the same. The upper caste in colonial times refers to Brahmins and Kshatriyas and the upper caste in post-colonial times could refer to Brahmins, Kshatriyas, Vaishyas, and forward castes from Sudras. In science and engineering, in India, among the upper caste, Brahmins are more into science and less into engineering, and the rest of the upper caste is less into science and more into engineering. Brahmins during pre-colonial and colonial times have dominated both science and literature. While they continue to dominate sciences, space in literature was gradually claimed by the castes below them, Dalits, minorities, and women over the long course of time. Domination of Brahmins in science and literature in pre-colonial and colonial times, professional enmity, and hostility, and these two resulting from misunderstanding each other were not much visible. Moreover, for a Brahmin, most of the literature was about gods, religions, and religious philosophy not much of it is about the material world. They locate science too in religion. They hardly disconnect the meta-physics from exact sciences. Therefore, they view that the purpose of science and literature is the same: understanding the 'truth'. Religion-sanctioned (upper) caste status guarantees exclusive rights over knowledge, education, science, and literature. In other words, if Brahmins are detached from religion and caste, they might lose domination over science and literature. Therefore, Brahmins would be interested in giving the same importance to religion, science, and literature. They do not see science and literature are antagonistic to each other. Mahendra Lal Sircar believed in the spiritual conception of science that offered a path to reach God since science was but a short name for positive knowledge acquired by the human by coming into direct contact with the works of God, science with telescope and microscopes with its advancements showed the ever-greater-order of perfection in the arrangements of things by the divine Maker and it was only by a systematic study of the physical universe that the human mind was brought into contact with the mind of that Maker (Lourdusamy, 2003). But this view did not continue for long. When the new and modern literature, most of which is social and rational, was produced by the radical elements from the subaltern sections of the society, their views on this kind of literature and the people who produce it were contrary to the literature they produce. The literature produced by the subaltern sections of the society has been anti-religion, anti-social systems and customs, anti-superstitions, and anti-caste. Therefore, the literature of the subalterns is literature does not fall into the category which is not problematic to the Brahmins. After independence, Brahmins slowly and gradually left literature and aggressively focused on science. In colonial times, from the last quarter of the 19th century, Indian scientists were organizing themselves under the emotions and sentiments of nationalism. In this response, they were not limiting their response just to build the Indian or native science alone but 'India' culture or rather Hindu culture was also forming part of it. Their views on modern science were contrary to the views of scientists in Western Europe and Metropolitan scientists in the colonies i.e., British Scientists. While Western scientists have completely subscribed to the Baconian utilitarian theory of science which calls for human control over nature or efficient usage of nature, Indian scientists like Mahendra Lal Sircar viewed science as a communication, a form of poetry or even a form of worship (Lourdusamy, 2003a).

Perhaps, India did not produce an individual like C. P. Snow who was a physicist and a novelist who gave importance to both. Expertise in these both areas gave him access to the views and opinions of

scientists on literary experts and vice versa. However, like that Mark Shelly who wrote *Frankenstein* (1818), the novel that become one of the enduring imaging of modern literature which changed according to the time and context to engage with the question of modernity, science there are scientists who produced literary works and their literary intellectuals who wrote science fiction in India. Jagadish Chandra Bose wrote two novels: *The Taming of the Strom* (1897) and *Absconded Tempest* (Palatak Toofan-1896). The latter was based on the Chaos theory which became a reality fifty years later. Jayant Vishnu Narlikar, the astrophysicist, wrote three novels on fiction in English: *The Return of Vaman*, *The Adventure*, and *The Comet*, and also wrote eight books in Marathi and one in Hindi. Jagadananda Roy, a Bengali science fiction writer was a teacher of science fiction literature. Literary intellectuals from various languages wrote science fiction. Tamil poet C. Subramanyabharathi wrote *Kakkai Parliament* (Parliament of Crows), B. Jayamohan wrote *Vishambu: Ariviyal Punaikadhaigal*, R. Rangarajan who writes with allonym Sujatha wrote *Vignana Chirukagathigal*. He wrote *Sorga Theevu* in 1970 and *Pesum Bommaigal* in 1970. Among women writers, Rakeya Shekhawat Hussain, a Bengali Muslim woman wrote the novel: *Sultana's Dream*, as a means to visualize a feminist utopian world called Ladyland where women are placed in the submissive position by the Islamic patriarchy are liberated and taken control and reversed roles. In the imaged techno-scientific society, Rakeya places women in charge of innovations, and that too physics and chemistry instead of medicine and biological sciences (Debali, 2017). She recognizes education as a tool of emancipation. She employed novels as a genre to challenge the social construction of the patriarchy and chose science and technology as themes through which could challenge it. Thus, there are scientists who have been writing science fiction that might be considered literary work and there are literary intellectuals who are writing science fiction with some degree of expertise on the chosen topic. Thus, there are scientists who have been writing science fiction that might be considered as literary work and there are literary intellectuals who are writing science fiction with some degree of expertise on the chosen topic. This could be seen as experts from two different poles engaging with each other. However, they engage in a way that would not promote any debate and discussion or may not result in understanding each other's expertise. Therefore, science fiction by scientists and literary intellectuals is not what the engagement C. P. Snow was complaining. Early in the 19th century, in 1827, the *Gleanings in Science* was published by the Asiatic Society of Calcutta, and in 1830, the Madras Literary Society published a journal titled *Madras Journal of Literature and Science* published articles covering science and literature as well (Raman, 2010). However, there is no evidence to suggest that this promoted debate and discussion between the experts from the two sides, except that articles from humanities and sciences were being published in the journal.

3. Post-Colonial Context

The end of colonialism in India did not bring many changes in higher education. Spirit of the Swadeshi movement (1905) continues to provide the required sentiments and encouragement for it to grow. By the time C. P. Snow was assessing the relationship between scientists and literary intellectuals in Western Europe, in the just de-colonized India, British scientists in India might have maintained the same views as the scientists of Britain in England on literature. Though the Indian upper caste scientists who have been emerging from the second half of the 19th century would maintain parochial views on literature as like the British scientists, especially if the literature is produced by the non-Brahmins. In India, most of the science and literature were dominated by the upper caste as they had religiously-socially engineered monopoly over these two areas from ancient times. However, the views of the upper caste scientists would change when the non-Brahmins are entering into science and literature. As long as these two were in their hands, science and literature were the same. But when the non-Brahmins entered into science and literature, the upper caste Brahmins began to claim science is natural to them and literature is something that belonged to women, Sudras and Dalits. Hence, it is safe to argue that scientists and literary intellectuals were from the upper caste for a long. From the 1950s, the Sudras, Dalits, Women, and Adivasis were making inroads into literature and social sciences which forced Brahmins to limit themselves to sciences.

Early in the 1950s, India made efforts for bringing sciences, literature, engineering, and social sciences together. The crisis of civilization that is already showing signalled the necessity of integrating humanities and social sciences with engineering and sciences. In other words, engineering and sciences

which dominated the model of development for two five centuries in the world (1543 to 1950) seem to have disconnected themselves from the societal reality, especially the last two centuries (1750-1950) of the capitalist-backed Industrial Revolution model of development. Therefore, the humanization of science and engineering is seen as a priority to counter the hegemony of the capitalist mode of production. Even if it is not unavoidable, the humanization of science and engineering would, at least, force scientists/engineers to be guided by the morals/ethics/ecological obligations which are completely missing in the capitalist era of development. As soon as Science, Technology, and Society Studies (STSS) were taking shape as an inter-disciplinary academic movement in Western Europe and North America, it did not take much time for India to adopt it. India immediately responded and started to create space for STSS studies by creating intuitions such as National Institute for Science, Technology and Development Studies (NISTADS) and made efforts to humanize science and technology by starting the Humanities and Social Sciences Department in Science and engineering education and research institutions. Very early, Jawaharlal Nehru University started centres and departments on cultural studies, studies on science and technology policy, philosophy of science, and so on.

Another major project is the History of Science, Philosophy, and Culture (PHISPC) conducted by the Centre for Studies in Civilisations (CSC), a non-governmental organization. The centre is entrusted with the project by the Human Resource Development Centre, Government of India, which was planned to publish fifty volumes and thirty of which are major volumes and twenty are monographs. The project intended to present the evolution of knowledge in India over its long history and was executed by academic experts from literature, social sciences, sciences, and engineering. There is no discipline that is left out from contributing to the project. According to the editors who themselves are from philosophy, history, mathematics, and other sciences, contributors to the project are not a single group of thinkers, methodologically uniform, ideologically identical in their commitment. They are from different disciplines of different ideological persuasions and methodological approaches because of which it is called mythologically plural. Though primarily historical in nature, in conceptualization and execution it was shaped by experts from different disciplines. This is one of the major projects which, at least, made the academic elite from literature, sciences, and engineering come together to project a comprehensive picture of the science, philosophy, and culture of India. Debi Prasad Chattopadhyay, founder of the Indian Council of Philosophical Research, founder Chairman of CSC, and the General Editor of the PHISPC was the pivotal force behind this amalgamation of ideas, concepts, and methodologies.

The project covered the history of science, philosophy, and culture of India from pre-history to the present accommodating subjects from agriculture and industry to metallurgy and technology, from physics and chemical practices to the life sciences and different systems of medicine-all the branches of knowledge and skill which directly affected human life formed part of the project. The project was unique, unrivalled, and discursive in its attempts to integrate different forms of sciences, technology, philosophy, and culture. The project also tried to show linkages between different branches of learning as different modes of experience in an organic manner. Further, the individuality, if not autonomy, of different modes of human experience-scientific, artistic, etc., is recognized. According to D. P. Chattopadhyaya, the project was planned in different discernible structures. The first is physical and chemical. The second is consisting of biology, psychology, and epistemology. The third is the most abstract structure that nests many sub-structures such as logic, mathematics, and musical notes

Jawaharlal Nehru, an admirer of the Western industrial model, supervised the state-sponsored institutional development for science and engineering research. The Council for Scientific and Industrial Research (CSIR), Modelling of the Indian Institute of Technology (IIT) on the model of the Massachusetts Institute of Technology where the Department of Humanities and Social Sciences (HSS) was infused under the leadership of Jawaharlal Nehru as the Prime Minister of India and as the admirer of large-scale industrial development and the inclusion of the same department in the later created Indian Institute of Science Education and Research (IISER) by the government headed by Manmohan Singh is evidence for such an effort to bring these two cultures together. While IITs are dominantly engineering education institutions, IISERs are dominantly science education institutions. Both are not exclusive in their nature. The purpose of the existence of the HSS department in these institutions is to

educate students of engineering and sciences on the human side of science and technology and humanize thought processes as well. The HSS departments mostly guide doctoral students, teaching compulsory papers from literature, history, philosophy, economics, and sociology.

The purpose of the existence of the HSS department in these institutions is to educate students of engineering and sciences on the human side of science and technology and humanize thought processes as well. Nehru understood that metal and humans need different methods of understanding. Scientific and humanistic means and methods are needed to understand human reality.

The HSS department in IITs, IISER, and the National Institute of Technology (NIT- earlier Regional Engineering Colleges), are not visualized as a model for integrating engineering, sciences, social sciences, and literature together, instead, it is added as a serving department. Students of Bachelor of Technology (B. Tech) are forced to go through papers offered by these departments. They mostly guide doctoral students and teach compulsory papers from literature, history, philosophy, economics, psychology, and sociology. The package of disciplines existing in HSS departments across IITs and IISERs varies. Mostly it is left to the discretion of the director. Even the objectives of the department depend on the way the director of these intuitions understands the essentiality of interdisciplinary. In the HSS of NITs English, Economics, and Management Studies are mostly accommodated. Therefore, the existence of humanities and social sciences in IIT, IISERs, and NITs is not serving the intended purpose. For instance, the absence of history subjects in any of the HSS departments of these institutions would result in students not knowing the social predicaments of Indian society. Lack of such knowledge does not contribute to the emergence of socially responsible or complete engineers and scientists. Jawaharlal Nehru wanted IITs and other centrally funded scientific and engineering institutions to create needed scientific and engineering experts to build the new nation. However, most of the IIT graduates and researchers migrated to Europe and North America in search of green pastures which is known as Brain Drain. Since most of the IIT graduates from 1950 to 1980s were dominantly from the upper caste and from the 1980s to the present apart from them the forward castes became dominant, IITs graduates' migration to foreign countries added strength to the social status of the caste and added new social and economic value to science and engineering. This newfound value furthered the polarity between science and engineering and social sciences and literature. Engineers in India, till information technology emerged as a dominant discipline, have had great social and economic value. This value keeps changing whenever a new discipline emerges with a high degree of utility value. This is high in the disciplines which offer the possibility of material wealth than in disciplines that solves serious long-standing social and political problems value of which cannot be measured.

After the emergence of Science Technology and Society (STS) studies, the HSS department is accommodating historians, economists, and, sociologists of science and technology who are offering courses on history, philosophy, politics, and culture of science and technology. These courses emerged out of the interdisciplinary movement in the 1950s are more suitable to teach in IITs and IISERs. Towards the beginning of the 21st century, there is the visible realization of among the heads of these institutions who are mostly engineers and scientists; there is a visible realization of this interdisciplinarity. In the newly created IITs and IISERs, the HSS department is much more vibrant. In some of these institutions, they are it is the Department of Liberal Arts. Apart from these, there are some more specialized centers and academies created by the central government to promote science and technology in which humanities and arts were also included. The Indian National Science Academy (INSA) and the Indian Academy of Science (IAS). These two organizations together published works on the history of science and technology. The *Daughters of Lilavathi*, edited by Rohini Godbole and Ram Ramaswamy provides a needed understanding of women scientists to the historians of gender studies and science and technology. The INSA started a History of Science Board at the Asiatic Society at Kolkata which later become the History of Science Division in 1965 and the Indian National Commission for History of Science in 1989. The Academy also runs the *Indian Journal of History of Science* since 1966. These organizations, in a way, provide space for historians and scientists to engage with each. Historians of science, like a scientist, make efforts to understand science to write the history of science. In fact, there is a new breed of historians who are trained scientists. D. D. Kosambi is one such example in India like that of Joseph Needham from Britain. This is not limited to history and

science alone. But this engagement would not result in bringing the required relationship between the scientists and historians. Every discipline is having its professional associations. Some of them are having their origins in colonial times. They could be broadly divided into umbrella associations and subject-specific associations. The umbrella associations like The Indian Science Congress (1914), The Indian Institute of Engineers (1920), and the Indian Social Science Academy (ISSA, 1974) present themselves as the associations which would offer space for those who fall under the broader identity of scientists, engineers, literary intellectuals and social scientists. Subject-specific associations like The Indian Association for English Studies (1937), The Indian History Congress (1935), The Indian Economic Association (1917), and The Indian Sociological Society (1951) accommodate sister disciplines. Like these, there are subject-specific professional associations at the regional and state level. Among the umbrella associations, the ISSA is the only one that made efforts to bring sciences, engineering, social sciences, and literature together. In its annual congresses conducted in collaboration with universities, institutions, and colleges, it has accommodated almost all subjects. It is having twenty-eight research committees and twenty-one inter-disciplinary thematic panels. While the research committee is on the major or a specialized subject/discipline, thematic panels are on inter-disciplinary themes which are continuously emerging due to continuous engagement between disciplines as such wholistic knowledge is needed to address various questions of human civilization. The academy has conceptualized 'science as social'. Science here is used as an umbrella word that represents all varieties of thought and knowledge processes and production and its application for the betterment of the human race. This conceptualization is intended to eliminate differences between sciences and social sciences and integrate all subjects into one network as the science of nature-human-society (Parthasarathy and Chaubey, 2022). The academy did not offer equal space for all disciplines. In its annual congresses organized with the collaboration of universities, colleges, and institutions, the academy made sure that it provides space for sciences, engineering, literature, and social sciences through its research committees and inter-disciplinary thematic panel. The research committee on a subject would collect and select research papers to be presented during the congress. While the number of social sciences and sciences research committees is higher, engineering and literature are not having enough space. While there are fourteen and nine research committees on social sciences and sciences respectively, there are two research committees on engineering and one research committee on literature. This clearly indicates that umbrella professional associations like this one though tried, but failed to bring real integration. The integration of these two polar communities would happen when both understand the possibility of understanding each other's knowledge and the necessity of sharing such knowledge. But in India, most of the scientists and engineers rule out the possibility of learning from literature and social sciences and *visa versa*. This attitude is not yet changed to a large extent. Scientists and engineers in India conserved social sciences and literature are subjects of the Sudras with low IQ. They also think that a scientist and engineer spending time on learning anything from literature and social sciences is a waste of time. Therefore, at the ISSA annual congress, scientists, engineers, social scientists, and literary intellectuals are emerging into separate isolated and unconnected groups who are dealing with research papers belonging to their own specialized subjects. However, it is not to suggest that ISSA's efforts to integrate are not having any impact on the integration. The ISSA is making a conscious effort not only through its annual congress sessions but also through membership and through the inclusion of academicians from all disciplines into the office bearers of the Academy. Out of its 48 presidents, from 1974 to 2022, sixteen were scientists, two were engineers, one was a linguist and twenty-nine were social scientists. Most of its focal themes, though appear to be social science in nature, since the academy's slogan: 'all science is social' allows it to foreground its entire academic activity as a multi and inter-disciplinary one, it had been doing it for four decades now. There is no doubt the academy is providing a platform for such an amalgamation. In fact, the ISSA claims that as an umbrella body of professionals, it has more relevance compared to the subject-specific professional bodies and their knowledge which deals with one discipline. It further believes that the current crisis faced by the planet and the human race could only be solved by the bodies of its kind which facilitate debates, discussions, and learning between experts of sciences, engineering, social sciences, and literature to produce knowledge that is being used for the keeping human race intact with its varied material needs, emotions, sentiments, means and methods of governance and survival. The flow of knowledge for comprehending critical problems from multiple dimensions, and amalgamation between experts of all disciplines becomes necessary. But a very less percentage of academicians from these different cultures are thinking that there is a possibility

of learning from each other. In other words, unlike the North American and Western European academic context, the Indian context reached a stage where scientists, engineers, social scientists, and literary intellectuals believe that there is a need for such an amalgamation and integration nor they have acquired the ability to learn from each other acquired the ability to understate each other's knowledge. If not all most of the scientists and engineers, in India, believe that engaging with social sciences and literature offers nothing to them at a professional level. Apart from times, since the value and position of scientists and engineers are determined by the citation and patents, Indian scientists and engineers believe that the popularisation of science, as an academic exercise, offers no value to their careers. Therefore, the popularisation of science i.e., writing about science in a non-scientific language never made headway in this country.

This attitude of scientists and engineers reflects the general attitude of Indian society on various subjects. The Indian academic community, professionals, and the Indian government are governed by the priorities of neoliberalism and utilitarian political philosophy. Western Europe and North America as developed societies have reached the zenith of neoliberalism when it was in its full swing and pushed the developed world to the extreme specialization of disciplines. This has not only resulted in the emergence of polar academic groups but also after a few decades it was here in these societies a discussion and debate surfaced on the dangers of such a distance between sciences/engineering and social sciences/literature. But in the developing world, the extreme specialization of disciplines that reflects the zenith of neoliberalism, though a bit late, C.P. Snow's Two Cultures theory enters into the academic debate but has not generated necessary debate and discussion to the extent of forging a relationship between sciences and literature. which have reached the heights of the neoliberal economy. In other words, what, govern this polarity between sciences/engineering and social sciences/literature is the socio-economic value inbuilt into them. In pre-modern India, value of the knowledge was governed by the value inbuilt into it and the value that was socially constructed and allocated. In modern India, the major forces that govern this polarity are neoliberal capitalism and the nation-state. Of course, the upper caste, the rich, and the upper middle class which mostly benefitted from utilitarian knowledge join with these two and provide patronage to the polarity. These castes and classes provide social sanction and patronage to this polarity. In the Indian social context, individuals' intelligence was equated with the subject one chose to study. While students who chose literature and social sciences are with low Intellectual Quotient (IQ), people who chose sciences and engineering are people with high IQ. Though such a correlation is not scientifically proven, such a perception has already got social acceptance in the world. This has gender, class, and caste angles too. Science and engineering are masculine; therefore, women are not suitable. The poor and lower middle class cannot afford to pay fees of science and engineering courses; therefore, these subjects are not accessible to them. According to the upper caste which dominates sciences, Dalits, and Adivasis cannot study science and engineering because their IQ is naturally low compared to that of the upper caste. Thus, in India, class, caste, and gender determines who takes Science, Technology, Engineering, and Mathematics (STEM) as their career options. Apart from this, the same factors also work against the promotion of engagement between people from STEM and people from Social Sciences and Literature.

Since the government subscribes to neoliberal ideology, its focus has always been on sciences, engineering, and technology. Nehru's push for engineering education was well suited for the upper caste and forward castes who made the most of it. In fact, engineering empowered their caste status as it offered enormous opportunities to their generation. The same has been the case with medical science. As these disciplines are dominated by the upper/forward caste, they become representatives of these castes. While the caste status was supplemented by the economic empowerment they went through as they were priestly/business/land-owning castes, neoliberalism justified the purchasing ability of utilitarian disciplines of these castes. From colonial times to today, these two castes' have displayed a sort of attitude that gives the impression that they prioritize selfishness over the problems which affect the larger society. This also reduces the degree of social consciousness compared to a social scientist and a literary intellectual.

4. Conclusion

Thus, when we relocate the Two Cultures theory into the Indian context, it offers different reasons why sciences and literature separate into bi-polar groups. In the Western social context, C. P. Snow saw misunderstanding, professional grudge, and usefulness of the disciplines were prime reasons, in India it is caste, class, and gender which are reasons for this polarity from universal reasons observed by C. P. Snow in England. In India, though classical sciences and literature have been under the domination of the upper caste till the 1970s, they slowly gave up on literature and concentrated on modern science. The forward caste emerged out of the colonial developmental projects that have picked up engineering. Women, Dalits and Adivasis have chosen social sciences and literature as they lacked the ability to access science and engineering education which is misread by the upper caste as having something to do with caste. Despite efforts made to bring sciences, literature, and social sciences to engineering and science teaching and research institutions, it has not contributed to the academic amalgamation.

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