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## Science and Humanities–A Discussion of Correlation

Vagisha Sharma

Associate Professor, Department of Mathematics,  
Indraprastha College for Women, University of Delhi, India

### Abstract

Since long back, a kind of rift is prevailing between the disciplines - Humanities and Science. But should it really be there? In the present paper, the author tried to answer this question to some extent. The arguments are given to bridge this gap. When all disciplines are manifestations of the 'Eternal Knowledge' then why this divide should exist?

**Keywords:** Science, Humanities, Gyaan, Vigyaan, Knowledge, Interdisciplinary studies.

### Introduction

Every year, on January 28, when the 'National Science Day', in the honor of Prof. C.V. Raman, is celebrated, a surprising fact has been noticed that the involved institutions are predominantly dealing with science disciplines like Physics, Chemistry, Mathematics, Computer Science etc. The institutes of Humanities hardly ever felt concerned with this remarkable day.

Is it fair? Are humanities and science having nothing common? Is Science inhuman? Does Science without Humanities or Humanities without Science could exist? Is this discriminating practice worthwhile?

Mostly will say, 'yes'. But my question is why? Are disciplines included under Humanities group not scientific? Are humanities subjects concerned with totally 'non-scientific' thoughts? In Humanities, the included main subjects are Political Science, Social Science, and Psychological Science etc. Surprisingly name of each one of these has the word 'science'! Then why humanities and science are to be two different poles/cultures/ disciplines? Why this division exists? Are both streams not concerned about welfare of the 'mankind', which is the main motif of any civilization? Due to this so-called divide, increasingly, academicians dealing with sciences and literates of humanities are not ready to see eye to eye, rather each set consider themselves superior than the other. The literates are lost in their jugglery of words and verbosity while scientists are living in their own experimental world, too complex to be understood by humanists. Rarely any common point of interaction is arranged or noticed. Hence this trench of science and humanities is getting deeper and deeper, wider and wider. This discrimination is too prominent in our educational institutions running courses in both streams. Students of sciences are considered too intelligent and meritorious while that of humanities are looked at as an unworthy lot.

The present article is meant to deliberate on this strange perception of divide between Science and Humanities.

#### 1. Historical notes

In Eastern as well as in Western world almost till late, the concept of collective human knowledge, especially gained by systematic observation, experiment, and reasoning, regular or methodical observations or propositions concerning a particular subject or speculation, was commonly called 'philosophy' [10]. Most of the ancient thinkers like, Aryabhata, Bhaskara, Panini, Buddha, Mahavira Pythagoras, Aristotle, Plato, Socrates, Heraclitus, Confucius, etc. are considered as philosophers till date. But actually they were the experts of various disciplines like Mathematics, Astronomy, Biology, Music, Art, Philosophy, Mysticism, and Cosmology etc. We, the modern intellectuals are still figuring out the sources of inspiration, justification and methodologies of their valuable literary creations. Some of these texts are still beyond the scope of understanding of 'only literates' or 'only scientists', the concepts and contents involved being of cross-sectional nature.

A natural question arises – then how this distinction of Science and Humanities got initiated?

The general divide between 'two cultures-Science and Humanities', according to Snow [8], is due to British genealogy. He writes -*The compilers of Oxford Dictionary, setting to work in the late nineteenth century, recognized that this ('Science') was a relatively recent development...* The word 'Science' was at first used after 1860's. Its dominance was accelerated by T. H. Huxley who had been prof. in Royal School of Mines. He was invited for opening address of Mason College in 1880. This College was in the heart of industrial England explicitly founded to provide scientific education for those who intend to

pursue their career in manufacturing and commerce. In his lecture, Prof. Huxley challenged the defenders of traditional classical education. His affluent arguments, in favour of scientific education, compelled the educationists to introduce a new theme called 'Literature and Science'. As a result, the texts like Newton's 'Principia' and Darwin's 'Origin of Species' etc. became part of literary studies. This changed scenario along with industrialization triggered the demand of specialized education. Commercialization promoted the subjects like management, industrial engineering etc. which were useful in getting easier jobs as compared to other literary subjects and hence two different branches – science subjects and literary subjects got popularity. In the course of the time, these literary subjects got grouped under a wider group called Humanities. We, the Indians, being ruled by British for about 100 years, got influenced by this strange divide to the extent that we are still engrossed in this rift of Science and Humanities.

## 2. Etymological meaning

As per Online Etymology Dictionary[10] the word 'Science' is derived from the Latin word 'scientia' which means 'knowledge, a knowing; expertness'. The word 'Humanities' is also a derivation of some Latin word. The dictionary [10] writes "*Latin literae humaniores, the "more human studies" (literally "letters") are fondly believed to have been so called because they were those branches of literature (ancient classics, rhetoric, poetry) which tended to humanize or refine by their influence,....*

In other words, 'science' is meant to be the expert knowledge while 'humanities' is the study of humans. Thus the divide of science and humanities implies that study of humans is not (expert) knowledge or (expert) knowledge is not for humans i.e. inhumane!

The word 'Science' translates to विज्ञान in Hindi.

- 1) विज्ञान = वि + ज्ञान i.e. 'विशिष्टं ज्ञानं इति विज्ञानम्' means specialized study of any knowledge (subject) is Vigyaan (विज्ञान).

Some other available quotes are

- 2) 'कार्यकारणसम्बन्धं ज्ञानं इति विज्ञानम्'
- 3) 'पुनःपुनःपरीक्षितज्ञानं इति विज्ञानम्।'

Actually, (2) and (3) above are subtexts of the first statement because the word 'ज्ञान' is derived from the root 'ज्ञा' which means 'to know'. So anything which we want 'to know', whether by repeated experiments (as in third statement) or by cause-causation (as in second statement), all is Gyaan (ज्ञान). When a particular direction of thought i.e. specialized inquiry is considered, it is Vigyaan (विज्ञान).

The word 'Humanities', translates to 'मानविकी' (Manviki) meaning there by "(subjects) related to 'Maanav' (मानव)". But, who is this 'Maanav' (मानव)? The answer is 'मनोर्पत्यं पुमानेति मानवः' i.e. "those who are descendants of 'Manu' are called 'Maanav' (मानव)". We, the humans are known to be the progenies of 'Manu'. Thus, 'Maanviki' (मानविकी) is the study of Humans i.e. all those subjects which are related to the humans, come under 'Maanviki' (मानविकी).

Do the subjects like Physics, Chemistry, Mathematics, etc., known to be a part of science stream, not taking care of humans? Then, why these subjects are not part of Humanities? Similarly, the subjects like Literature, Political Science, Psychology, History, etc., happen to constitute Humanities, are nowhere less experimental and specialized, so it's unfair to not include the munder sciences.

### 3. Correlation

Let us consider a practical situation.

Nowadays, Delhi is under the repeated attacks of dengue fever. The disease has started causing lives of people. The researchers are working, day and night, to identify some vaccination/ medicine for the eradication or at least cure of this disease to save precious lives.

Now, here, the attack of disease is a social issue. Spread and severity of the attack could only be known provided some data is collected, analyzed and interpreted. So there is a need of sociologists and statisticians. The geographical situations add up in identifying the causes and the breeding of the mosquitoes which are actual carriers of the virus of dengue i.e. Geographers are not less important. The patients' medical history may serve as an additional factor while prescribing the medicines to cure i.e. Historians also has some place. For spreading awareness via slogans, pamphlets, seminars, conferences etc. literates need to be engaged. There could be many more effective parameters which need to be studied essentially before experimentation of proposed medicine for the disease. So this scientific experiment has too much dependence on the humanities.

Similarly, psychological studies, historical discussions, musical concerts, sociological and political surveys, etc. all are successful only when scientific methodologies are adopted. Before starting with any experiment or survey, the researchers are supposed to take *ethical clearances* from concerned bodies. So the correlation among various disciplines is self-evident.

Surely the two disciplines cannot survive independently. Each one side needs the support of the other. It is only the specialization which matters and separates these two. But that should not be the reason for divide, as specialization is a characteristic for each subject, even within science as well as within humanities. A philosopher can interfere with political science studies but only to some extent. Similarly a physicist has limitations while studying chemical reactions and so on. For deeper research, each subject requires some sort of specialization. But this specialization does not allow experts of one field to consider the experts of other fields as inferiors or incompetents. Each expert has its own forte but together, all of them, can create an ocean of intellectuals which may remain unbeatable, if works in unison.

As far as methodologies are concerned, both science and humanities follow the same pattern. Both disciplines start with an experiment or a thought or a question. Both analyze data. This data, for sciences is usually in the form of numerals or statistical data while for humanities, it may consist of arguments and commentaries of various scholars. Regarding results of experiments, the humanities have several different answers for a single question after a lot more argumentation and discussion while science likes one definite and concrete answer after repeated experimentation. But, in both cases, the answers obtained are not always the end results rather they are again and again revisited, experimented to make refinements [6].

According to Anne Fausto-Sterling, quoted in [6], *science has too many "practitioners" and barely any "critics" while humanities has many "critics" and never enough "practitioners."* If these two are combined and implemented together, the better and more refined outcomes could be obtained. Traces are available where the scholars tried their hands on the cross-sectional researches. **Metaphysics** is unfolding the secrets of eastern mysticism through physics and mathematics; **Quantum**

**physicists** are relating scientific theories of Universe (ब्रह्माण्ड) with different schools of Indian Philosophy especially using Vedanta (वेदान्त) and Nyaya philosophy (न्यायदर्शन); **cognitive science** is combining psychology, artificial intelligence,

computer science, neurology to understand brain functioning; **historical studies** are incomplete without testing the emission of carbon-14; **music concerts** are successful only if efficient sound systems are available; the halo and aura of any person, rather the whole naadi-tantra (नाडी तंत्र) of yoga sutra (योग सूत्र), is being identified as the **electro-magnetic field**, and so

on. The God, religion and spirituality which were earlier, considered to be delusions, are finding grounds via increasingly available scientific experiments and arguments and attaining front positions due to these cross-sectional studies. Interested readers may refer to [1], [3], [4], [5], [7], a few, in this list.

#### 4. Gyaan (ज्ञान) and Knowledge

In eastern thinking, where the *Gyaan* (ज्ञान) is considered to be ‘attainment’, ‘enlightenment’, ‘awakening’, ‘Ultimate Reality’, this divide of two cultures is totally unrealistic. *Gyaan* (ज्ञान) is considered to be *Apaurusheya* (अपौरुषेय) i.e. ‘not of a man’ or ‘super-human’ or ‘beyond the human capabilities’. It cannot be *given* or *taught* to anyone rather it is said to be *achieved*. This *achievement* comes from one’s inner-self. It exists in each of us and remains with us *assamskaar* (संस्कार) even after death. The purpose of the life is to discover this *Gyaan* (ज्ञान) in your inner-self. These facts, nowadays, have been verified scientifically also. What we learn in our course-curriculum to complete degrees, i.e. whatever we are learning from physical resources and sensory organs, is called *Vidya* (विद्या) but not *Gyaan* (ज्ञान). By contemplation and rumination of this acquired *vidya* we expand our consciousness. The teachers and gurus can only ignite the spark in the minds of their disciples to achieve *Gyaan*. By deep austerities and penance (*sadhana-sadhana*), these disciples move towards ‘attainment’, ‘enlightenment’. As per Buddhism School ‘he (Buddha) could only show the way to Buddhahood, and that it is up to every individual to tread his way to the end through his or her own efforts’ [1]. To achieve this ‘enlightenment’ no one has to go to mountains and sit for years in forests, like great monks or hermits (*sanyasi*); rather, as a social element, each one is supposed to perform his/her duties with full honesty, dedication and devotion. Maintaining these qualities and following disciplined life-style is, actually, the aforesaid austerities or penance. To trace the path towards Ultimate Reality, the first step is to be dutiful and perfectionist in your worldly affairs i.e. be a true *karmayogi* (कर्मयोगी) because Lord Krishna explains in the sacred Bhagvad Gita that ‘The karmayogi, however, who depends on Me, attains by My grace the eternal, imperishable state, even though performing all actions.’ [9]:

सर्वकर्माण्यपि सदा कुर्वाणो मद्व्याश्रयः ।

मत्प्रसादादवाप्नोति शाश्वतं पदमव्ययम् ॥ (18.56)

These actions may be any tasks which are destined to an individual by nature (*nayati-niyati*). These may not always be spiritual because according to Lord Krishna, “...howsoever men seek Me; even so do I approach them; for all men follow my path in every way” [9]:

ये यथा मां प्रपद्यन्ते तांस्तथैव भजाम्यहम् ।

मम वर्तमानुवर्तन्ते मनुष्याः पार्थ सर्वशः ॥ (4.11)

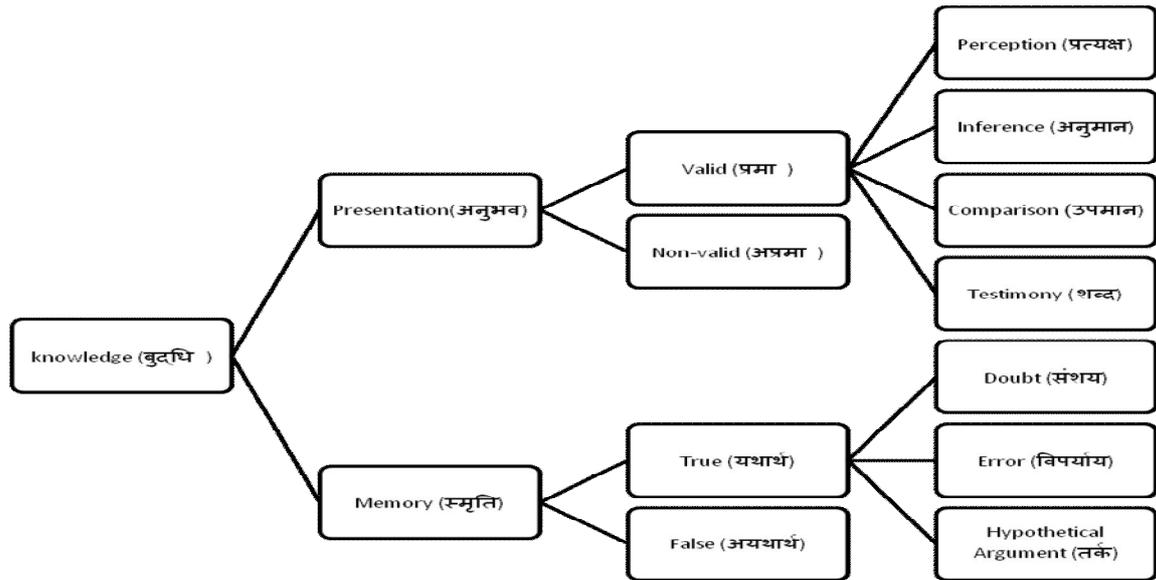
The dictionary meaning of *Gyaan* (ज्ञान) is ‘Knowledge’. The term ‘Knowledge’ has been interpreted differently by different schools of thought in Indian philosophy. In Nyaya philosophy (*Nyaya Darshan*), *Gyaan* (ज्ञान) is a synonym of ‘wisdom’ and ‘attainment’ while in Sankhya Philosophy (*Sankhya Darshan*) ‘wisdom’ and ‘knowledge’ (*Buddhi aur Jnan*) are considered as two different entities, some other school consider it as ‘Uplabhi’ (*Uplabhi*), and so on. Various philosophers, even within one particular school of thought, don’t have concurrent interpretations and that is the beauty of philosophy. According to Bhagvad Gita, ‘Knowledge of God and the wisdom’ is the *Gyaan* (ज्ञान):

ज्ञानं ते हं सविज्ञानमिदं वक्ष्याम्यशेषतः ।

यज्ज्ञात्वा नेह भूयो न्यज्ज्ञातव्यमवशिष्यते।।(7.2)

i.e. “I shall unfold to you in its entirety this wisdom (Knowledge of God in His absolute formless aspect) along with the Knowledge of the qualified aspect of God (both with form and without form), having known which nothing else remains yet to be known in this world”. [9]

But still, as per the understanding of the author, all schools, directly or indirectly, interpret it as a scientific tool in the ambit of humanities e.g. Chatterjee [2], a well-known scholar of Nyaya philosophy, classifies his interpretation of ‘knowledge (बुद्धि)’ as in the figure(1). Interestingly, all terms used in this chart, for defining classifications and sub-classifications, are well known terms of a scientific experiment, though the Nyaya philosophy is considered to be in realm of humanities. Interested readers may refer to [2] for more details of the terms.



**Figure (1)**

To expand our consciousness and to trace the path towards Ultimate Reality, which is called ‘Tao’ in Taoism, one is free to choose his/her own path, may be scientific or argumentative or spiritual or any other. While choosing, our mind should be clear and oriented. Buddhist patriarch, Ashvaghosha says, quoted in [1]: “When the mind is distributed, the multiplicity of things is produced, but when the mind is quieted, the multiplicity of things disappears.” So we are to regulate our mind. The God has created human body with only ‘one’ brain against two hands, two eyes, two ears, many teeth etc. This brain works in unison with our mind and the whole body. One half of the brain is known to be responsible for creative thoughts while the other half is for logic and reasoning and what we finally perceive, is the by-product of ‘the brain-as-a-whole’ and not of right half or left half. When our creator believes in unison, is it fair on our part to maintain the divide? Capra [1] rightly says “..., all things and events perceived by the senses are inter-connected, and are but different aspects or manifestations of the same ultimate reality. Our tendency to divide the perceived world into individual and separate things and to experience ourselves as isolated egos in this world is seen as an illusion which comes from our measuring and categorizing mentality. It is called avidya, or ignorance.

Thus this divide of disciplines is nothing but our mental ignorance. For this, to some extent, our education systems and our government, both are also responsible. In most of the Indian educational institutions, there is no room for cross-discipline studies or research. The scholars, who dare to move ahead in this cross-discipline direction, are hardly encouraged. The researchers of different disciplines love to live in their own protected shells, occasionally interacting with others’ disciplines. The intellectuals, holding positions of governance in these educational institutions, are to create an atmosphere, may be starting from undergraduate level only, in which there is an urge to grasp the knowledge of all disciplines. This may serve as a foundation for interdisciplinary research. The newly introduced ‘Choice Based Credit System’ of Indian Universities, is a baby-step in this direction. But the ground realities are yet to change. Since the western world has already started promoting such

endeavors so the upcoming generations of these institutions are multidimensional. Most of the Indian institutes are yet to develop and promote this culture.

### 5. *Conclusion*

Finally, Science and Humanities have too much overlap and hence are highly correlated fields. Divide between these two, seems to be maintained only due to some vested interests. In fact, 'Knowledge' is a big banyan tree. Its ever originating branches and roots are different disciplines. Let's create sufficient space for all these emerging branches and roots i.e. various disciplines, be it of science or of literature/humanities, so that the tree does not die or dry, rather become immortal.

### References

1. Fritjof Capra: The Tao of Physics (Third Edition), Flamingo (An imprint of Harper Collins Publishers, United Kingdom, 1982
2. S.C. Chatterjee: The Nyaya Theory of Knowledge, Motilal Banarasi Das, Delhi, 2016
3. R. H. Narayan: The Theory of Matter in Indian Physics; <https://arxiv.org/ftp/physics/papers/0702/0702012.pdf>
4. R. H. Narayan: Nyaya-Vaisheshika: The Indian Tradition of Physics; <https://arxiv.org/pdf/physics/0701077>
5. Subhash Kak: Concepts of Space, Time, and Consciousness in Ancient India. <https://cds.cern.ch/record/381232/files/9903010.pdf>
6. Kobieta: Science vs. Humanities: A Closer Look at the Overlapping Methods of Inquiry <http://serendip.brynmawr.edu/exchange/literary-kinds-2012/kobieta/scien...>
7. Shaun Moss: Practical Metaphysics, Shaun Moss, Melbourne, Australia, 2009.
8. C.P. Snow: The Two Cultures, Cambridge University Press, Canto Edition, 1993
9. The Bhagavad- Gita or The song Divine, Gita Press Gorakhpur, India, 1999.
10. Online Etymology Dictionary <http://www.etymonline.com/index.php>.