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## Religion and scientific education: hand in hand, in the form of functional scientific literacy

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### Abstract

This paper sets out to provide an overview on coordination of religion & science, and their real meaning in life of human being. Religion is a human activity (Dow, 2007) and a matter of belief and practice, as a product of human mind (Albert Einstein, 1930). It is a primary, essential universal social phenomenon which seriously concerns almost every human being (Ambedkar, 1957). Religious phenomena are naturally arranged in two fundamental categories of “beliefs and practices” the first one indicates “states of opinion” in the representation of the mind and the second, determined as modes of action. Religion is the foundation of society connected to social progress. Durkheim ignored the possibility that religion was coming out of the human brain, the mind, without the help of “society.” there is no reason or justification for Religious leaders to remain themselves ignorant, aloof, isolated or blind-folded from these developments and also to keep their followers scientifically unaware ignorant, illiterates and continue to dogmatically opposing new thinking. First of all there is need to open up themselves, develop capacity to understand the new science evolve with changing time, accept the reality and help to newer generation in providing a scientific basis to preaching their faiths. Because the only purpose of religion is to collectively and individually educate their followers to live mentally, thoughtfully, intellectually, physiologically, nutritionally, physically and academically in sound good health in harmony with the laws of nature. Scientific education leads toward scientific temper & knowledge. Man can make this scientific literacy functional. All knowledge is neither science nor power. When observed facts are organised in a way that shows how they are related, knowledge becomes science. i.e., science explains the relation between facts and is concerned not only with what happens but with how and why something happens. Functional scientific literacy is portal of real life which comprises of three main domains i.e. nature of science, science process skill and use of science understanding in daily life. By keeping these three perspectives, school science curriculum should be such that prepares young generation to use scientific knowledge outside of formal education setting in guidance of religious mind (spiritual thought). thus religion and scientific education moves hand in hand which makes functional to every scientific product of mind.

**Keywords:** Religion, scientific education, and functional scientific literacy

### 1. Introduction

Religion is a human activity (Dow, 2007) <sup>[9]</sup> and a matter of belief and practice, as a product of human mind (Albert Einstein, 1930). <sup>[8, 22]</sup> It is a primary, essential and universal social phenomenon which seriously concerns almost every human being (Ambedkar, 1957) <sup>[1]</sup>. There are many exciting scientific conversations and discussions occurring across the world and in India at difference public places viz. Classrooms, college, laboratories, during conferences etc. But few are as passionate to discuss about the relationship between science and religion. Many topics of school curriculum, we teach the students in the view point of religion but we don't explain their scientific aspects of that particular topic. For instance, we may teach students in science class, that origin of the earth and universe is due to big-bang or higgs boson (god particles at the large Hadron Collider-LHC, the most powerful particle) but religious views tells them it is created by super natural power i.e. god. Likewise, origin of life, science proves that it is originated from unicellular organism having micro particles i.e. electron, proton and neutrons while religion preach that life is originated by super power named as god. Now questions are how to provide the scientific education to students? Whether it is possible to teach in either points of view (religion as well as science) or science is enough to explain everything.

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This conversation is arising in many contexts: neuroscience finding the 'god spot' in the brain, while regions' leader declared that it is external source of power in universe exists in every object. These different points of contact between science and religion, everyone has a different meaning of science and a different understanding of religions. With an integral approach we can begin to untangle the Gordian knot of traditional religion and modern science in a postmodern world (Clayton and Simpson, 2006) [2]. It mean, the integral approach provides a way truly integrating the many aspects and understanding of science with the many facets and perspectives of religions. By which human being do good and harmonic behaviour towards each other. Most of the people believe that without religion man can't exist but if we think scientifically is it so? Such type of questions bounces in scientific human mind. Does man takes birth along with religion or alone and independent? Had religion come first in existence before origin of mankind on earth or it came later? Generally, religion is understood by many as a belief in the Supernatural power or the Supreme Being and their relationship with the nature that surrounds them.

## 2. Meaning and nature of religion and science

The term "religion" defined by the different people in different form. Ronald L. John stone define the term "religion" is The English word has a Latin root "Religare" meaning, "to bind together" suggesting the concept of a group or fellowship. Emile Durkheim (1995) in, *The Elementary Forms of the Religious Life*, conceptualised this term on the basis of social facts as a dichotomy, saying that "religious phenomena are naturally arranged in two fundamental categories of beliefs and practices", the first one indicates "states of opinion" in the representation of the mind and the second "determined as modes of action" which is the practical side of life. Therefore, theoretical conceptualization of this term differs because of the richness and variety of the subject matter, opinion and understanding.

The term "Science" is a systematic enterprise that builds and organises knowledge in the form of testable explanations and predictions about the universe. In an older meaning, "science" refers to body of knowledge itself that can be rationally explained and reliably applied. In modern usage this term most often refers to a way of pursuing knowledge, not only the knowledge itself. Science education is the way by which one can understand the real meaning and purpose of entities exist in universe. Knowledge of science and scientifically literate man, with situation and circumstance, relate scientific literacy to an appreciation of the nature of science, personal learning attributes including attitudes and also to the development of social values and social usefulness (Holbrook and Rannikmae, 2009) [5].

## 3. A scientific look at the religion and life

Religion which is an activity of human and collection of behaviour being that can be easily accepted only within the framework of reality that it creates for itself. If you accept the existence of whatever myth, god, spirit, or supernatural force that a religion proposes, then you can see the logic of all that follows. However, most of the entities, gods or whatever, that are the basis of religious thought and action cannot have their existence validated by direct observation. How do non-believers understand religion? Simply saying that the believers are crazy or living in a different world will not be sufficed. The believers are also normal human beings. Everything that the human being has done and thought is

concerned with the satisfaction of deeply felt needs and mitigates the pain. Keep this view constantly in mind if one wishes to understand spiritual movements. Feeling and desire are the motive force behind all human endeavour and creation. Now question is what are the feelings and needs that have led men to religious thought and belief in the widest sense of the words? A little consideration will be suffice to show us that the most varying emotions preside over the birth of religious thought and experience. It can be look at religion in another way, through science. Science has provided human culture with an excellent understanding of the natural world and human behaviour. However, it is difficult to understand the logic of religion for the scientist. The scientist must understand religion as the complex workings of a human brain that is not responding directly to observable reality. The scientist does not lie in myth because of religious behaviour but they interested in an understanding of why human beings do and think what they do. Among other explanations, science has found that they do what they do because they have been made that way by evolution. Evolution is one key to understanding of religion from a scientific point of view and they longing to know the answer of this centre point of religion behaviour.

Is religious behaviour rational? Is it the mobilization of available means to achieve certain ends? Religion is social thing and the purity of life i.e. purity of body, speech and mind Where human being is independent and can search truth of every phenomena. Wherever man becomes failure in searching of truth or cause of an event, man blame to super power or god and it is due to blind faith. This blind faith kills the tendency of searching truth and stops the curiosity (Ambedkar, 1975) [1]. EB Tylor (1958) [20] attributed the origin of these religious ideas to dreams rather than to cultural evolution. This was a back-door admission that religion had some sort of biological origin since dreams are produced in the central nervous system. He spent time looking at world religions and reduced their fundamentals to his concept of *animism* i.e. a belief that all natural objects possess soul. He saw humans as always improving their intelligences through rational thought. The primitives were basically rational in their idea of souls, but they had little scientific knowledge. Animism was rational but ignorant. Tylor believed that minds would improve as they acquired more scientific knowledge.

Emil Durkheim (1963) [3] preceded this progressive tradition by declaring that science would eventually triumph over religion as the primary human representation of reality. In 19<sup>th</sup> century ideas about the origins of religion left biology behind and began to speculate about the socio-cultural evolution of religion, a process that, at that time, was clearly connected to concepts of social "progress." Durkheim defined religion as a collective representation that made things sacred. The power to do this resided in the collective itself, society. So society had to create religion. Durkheim felt that religion was the foundation of society. The drawback of Durkheim's definition was that some people practiced religious activities by themselves without the presence of others i.e. without society. In another way could say that they were surrounded by a society in some environmental sense, but there were persons, shamans, diviners, prophets, charismatic cult leaders, and other holy folk, who communicated directly with the divine without the intervention of social convention and who created religion on their own. Durkheim kept this sort of behaviour into the

category of “magic” and said that it was outside of religion. It was not acceptable the religion exist alone as mind origin without society therefore Durkheim ignored the possibility that religion was coming out of the human brain, the mind, without the help of “society.” Emil Durkheim (1963) [3].

Thus Religion is considered as one of the earliest institutions and thinking of mankind and is found in all the societies of the past and present. It works over society accepted as one of the strongest sources and means of social control. It never divides the human being as they belong to different religion. It only lead and provide the right path for living scientific life. Because its ultimate goal is to make man’s life ease, scientific and realize the real meaning of natural existence of mind and objects in nature. Religions do not allow to orthodox mind; if so it is again negative origin of human mind. So it need to moves along with science.

#### 4. Scientific education towards scientific temper

Scientific exploration at mental and spiritual levels had begun ever since human being learnt to observe, think and analytically interact with his surroundings. And this period, on the basis of authentic recorded history dates back to at least 25,000 years B.C. in India and followed by Vedic civilization (Moharir, 2014) [13]. Human being initiated to quest scientifically for understanding on his own position, and purpose, within the scheme of natural material creation. And began to explore; who actually he is? Where from and how he came in existence? What is his composition and constitution? What is the purpose of his existence? What is his final destination? Where is the destination located? What is his real identity? And what is materially common between man and surrounding life forms and other life-less objects? Likewise many quests raised in the human mind. From birth till death, man observed several irreversible changing phases in his own life. Dialogue and quest of man in the modern scientific age as of today is precisely seeking the relevancy of religion i.e. the march of scientific quest of man (Vyasa, 2010) [21]. Science education leads toward scientific temper and knowledge of man. Francis Bacon said some 400 years ago, *Knowledge is power*. All knowledge is neither science nor power. When observed facts are organised in a way that shows how they are related, knowledge becomes science. i.e., science explains the relation between facts and is concerned not only with what happens but with how and why something happens. And scientific attitude called scientific temper is a frame of mind which makes man able to classify the scientific knowledge, facts, recognise their sequence, relative significance and ability to form judgment upon this facts and knowledge unbiased by personal feeling (Laik, 1994) [11]. Since ever a question bounce in the human minds that there is the birth and the death? What is the meaning of birth and death? Modern development in physical science tell us that everything in the universe is made up of atoms, and atoms are built up of sub-atomic particles the protons, neutrons, and electrons which in turn form the elementary particles and these form energy of the magnetic monopoles. Two or more than two of these, similar or dissimilar atoms combine to for structures of various kind, nature and characteristics. They include either animate and the inanimate types. After specific period of time, or under specific conditions, all these animate and the inanimate structures naturally disintegrate into their individual components atoms or group of atoms to nature and are reused to form new structure. This cycle of formation of

structures and their disintegration is continuing in a perpetual way ever since the atoms and material universe came into existence. This energy is mediated through ion channels as ionic electric current within bodies of all life forms to exhibit their conscious function. Constitution of life called soul described by the ‘Panch-Kosh Sidhant’ (five cell model) and analogous of the modern concept of quantum energy packets. It is believed that modern science will accept and adopt this as the only logical and scientific explanation under the present state of knowledge (Sheldrake, 1995, 2012) [15]. Thus there is no reason or justification for Religious leaders to remain themselves ignorant, aloof, isolated or blind-folded from these developments and also to keep their followers scientifically unaware ignorant, illiterate and continue to dogmatically opposing new thinking. First there is need to open up themselves, develop capacity to understand the new science evolve with changing time, accept the reality and help to newer generation in providing a scientific basis to preaching their faiths. Because the only purpose of religion is to collectively and individually educate their followers to live mentally, thoughtfully, intellectually, physiologically, nutritionally, physically and academically in sound good health in harmony with the laws of nature. Due to variation in Geographical location of earth, our food intake, its nature and effective digestion, the body’s metabolism are mediated to a great extent by the external environmental conditions and all the religion must help their followers in developing the necessary mental strategies to combat them for survival. This is the only meaning, essence and purpose of all religions, past and present that have flourished on earth. In this concern Osho’s statement seems very relevant which is: “If religions do not progressively evolve with modern scientific thought they will have no option but to die” (Moharir, 2014) [13].

Mahner & Bunge (1996) [12] revealed that “Science and religion are incompatible and that a religious education is detrimental to a scientific one.” (p. 102). And further, argued “if a religious method were applied in science, and the scientific method in religion, the result would be complete mutual destruction. Science and religion are not only methodologically different but incompatible....Science and religion can only coexist if one of them is distorted” (p. 115). Some consequences of analysis for education as well as for education policy are explored. We submit that a religious education, particularly at an early age, is an obstacle to the development of a scientific mentality. For this and other reasons, religious education should be kept away from public schools and universities. Instead of promoting a religious world view, we should teach our children what science knows about religion, i.e., how science explains the existence of religion in historical, biological, psychological and sociological terms (Mahner & Bunge, 1996) [12]. Furthermore, Sue (2003) [19] discussed her idea that science and religion can coexist together without conflict. It is a view that has the counterargument that the two cannot coexist together at all because there are too many discrepancies. For instance, from a scientific perspective the earth was created through the big bang, but most religious people would say that it was created by a higher power that was super power as god. Now it is quite evident that while religion is not by any means to be used as God of the Gaps to explain science, it does work alongside science. Science and religion can coexist because their goals are different. Religion is “cognitive viruses” or “memes” that spread among humans,

even though religions are irrational and harmful. On other hand Francis Collins, the director of the human genome project, argues that evolution and theism are compatible and that naturalistic explanations of religion and morality are wanting. Here science deals with testable matters involving empirical and publicly accessible evidence, whereas world views or religions deal with untestable matters, is a popular perception. In common science has facts, whereas religion has faith (Hugh & Gauch, 2009) [6].

**5. Integrity of religion and scientific education:**

It obviously clear that man has no future without science but science is amoral, neutral and has no value judgement. Because, science needs to be guided. And this guidance can come only from spirituality or religion in real and scientific sense. In other side without scientific temper religion would not meet their goal and will become amoral as divert toward unrest of human being. The two streams of scientific materialism and scientific spirituality seem to come together to foster a universal consciousness. This will produce integrated human being, and thus help to evolve a complete human civilization, for which the world is ripe and waiting. Scientific education enables the people all over the world to participate in the march of science. Scientific temper and function scientific literacy as a product of science education can be use to mitigate man’s misery, to reduce monotonous work to provide gainful employment to improve the quality of life, and to mobilise and optimise the use of natural and human resources (Gopalan, 1995) [4]. Science and scientific education does offers ample opportunities for the maintenance of peace and harmony among us by inculcating better understanding between diverse social, religious, and ideological backgrounds. Through its implementation in real life day to day, it does offers the possibility of relief from

hunger, want and fear, which are at the root of all the world’s problems.

Sean Esbjorn, Hargens and Ken Willeber (2006) [18] explain an integral approach of religion and science. This is an inclusive approach for today’s world. This is characterised by disciplinary areas of clashes between traditional, modern and postmodern perspectives. The integral model is post disciplinary, in that it can be used successfully in context of approaches as disciplinary, multidisciplinary and transdisciplinary. Integral theory has received a wide embrace from individuals associated with a variety of fields: art, science, religion, business, co relational education, criminology, psychology, education, astronomy, sexual and gender study etc. Integral approach often represented by AQAL (All quadrants all levels) is short hand for multiple aspects of reality recognized in this approach. There are at least five recapitulatory elements that comprises and integral approach. these are- quadrants, level, lines, states, and types. These components represent the basic patterns of reality that repeat in multiple contexts. To exclude any elements in any given inquiry or exploration is to remove a truly comprehensive understanding.

The first element, all quadrants, refers to the basic perspectives and individual take on reality: the interior or exterior of individuals and collective. It has dimensions of experience (subjective), culture (inter subjectivity), behaviour (objectivity) and systems (inter objectivity). Each has its own validity claim (fruitfulness, justness, truth and functional fit) and mode of investigation. These all quadrants and elements are represented in given fig-1.

The next four elements arise in each of the four quadrants. All levels- are the occurrences of complexity within each dimension for example- the level of physical complexity achieved by evolution in the behaviour quadrant.

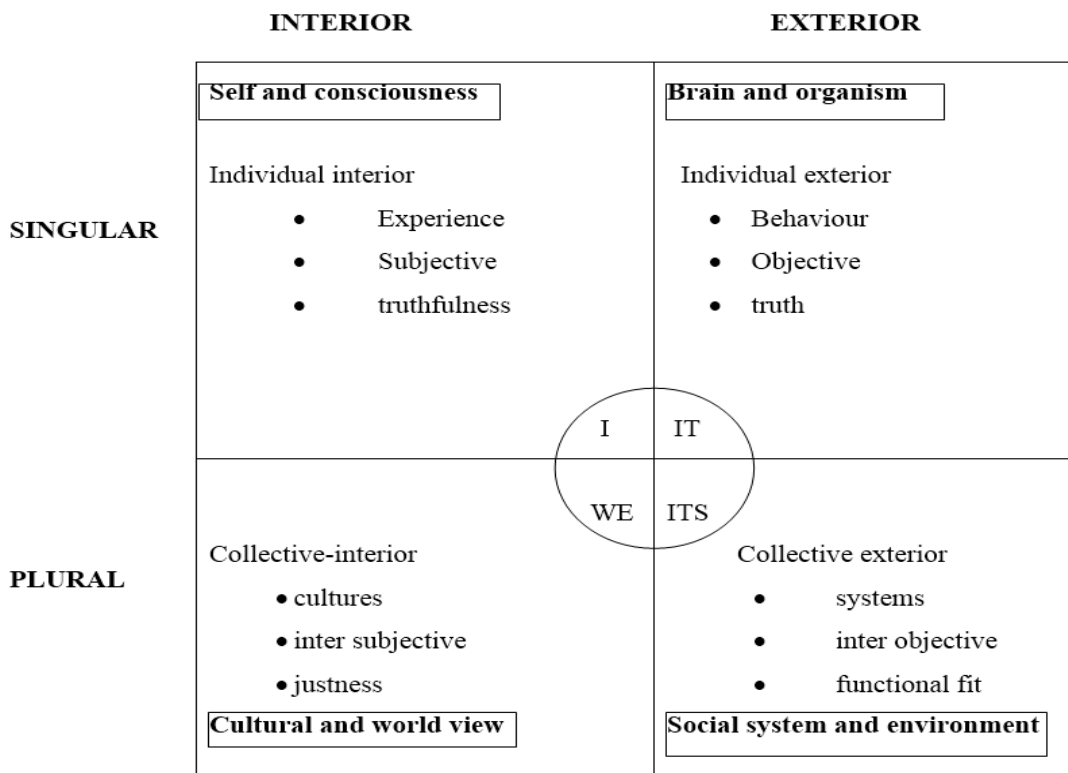


Fig 1: Integral quadrant model and their aspects, (by-Esbjorn-Hargens, S. and Wilber.K.)

All lines- are various distinct capacities that develop through each of these level complexity e.g. development features of cognitive, emotional and moral capacities in experience quadrant all states temporarily occurrence of any aspect of reality. All types- are variety of styles that aspects of reality assume in the various domains (e.g. festivals and rituals in cultural quadrants' domain). These all integrally promote the both religion and science in their real meaning and integrate the all the discipline to make functional in scientifically in society.

### 6. Functional Scientific literacy is portal of real life

The future is in the hand of science which guided by religious or spiritual thoughts. There are clear indications of this form discovery in physic, biology, bio-technology, electronics computers, space, material science and astronomy. The concept of science has a beauty and a kind of mystic appeal that makes a lasting impact on the mind. Pursue the truth and reality in all its varied aspect, in the path of a genuinely scientific humanism with zest, zeal and dedication for the best of one's ability and strength. These attempts of religious and scientific are for the development of human being in all aspects, which makes functional in every one's life.

The contemporary system of education is in need of Functional scientific literacy which advanced form of scientific literacy as it makes each and every learning theories and facts are utilitarian in nature for every human being whereas scientific literacy emphasise on theories and facts knowledge. Functional scientific literacy is comprises of three main domains i.e. nature of science, science process skill and use of science understanding in daily life. By keeping these three perspectives, school science curriculum should be such that prepares people to use science knowledge beyond formal education setting (Kumar and Banerjee, 2015) <sup>[10]</sup>. FSL is demand of these days. It is a fact that scientific and technological discoveries led directly or indirectly to substantial progress in the standard of living of individuals and communities and this social progress are merely by means of science and scientific thoughts. Whatever we are teaching or learning in formal, informal or non-formal way that are only for utilizing in the everyday life of human being. On other side religion also has the same goal i.e. scientific and purposeful life. In reality ethics of humanity derives its values from spirituality (Vyas, 2010) <sup>[21]</sup>. FSL is an advance form of scientific literacy, at one side scientific literacy focuses mostly on knowing the theories, concepts, facts, reading and writing about science; Furthermore to some extent it is used in problem solving and understanding of nature of science, Whereas FSL moves one step forward to make human being functional by utilizing their scientific literacy. The notion of Functional scientific literacy is perhaps closest to the perspective of how people can behave. We considered that is only through engagement with all aspects of socio-scientific issues that students can develop understanding and skills to assists their future decision- making and actions (Ratcliffe and Grace, 2003) <sup>[14]</sup>. Albert Einstein once noted that the significant problems we face cannot be solved at the same level of thinking as when we created them. Although the nature of science/technology research today is focused mostly on its functional uses in terms of applications to human welfare and the common good, school science curricula in the same context are practically non-existent. Scientific literacy represents

cognitive capacities for utilizing science/technology information in human affairs and for social and economic progress. (Hurd, 1997) <sup>[7]</sup>. Herbert Spencer, a British philosopher, in 1859 examined the question of "What knowledge is most worth?" (Spencer, 1859, p. 5) <sup>[17]</sup>. He thought that whatever is chosen to teach should have "bearing on some part of life." Now these days the Scientific literacy is not only the knowledge of science and technology for personal use and theoretically but also seen as a civic competency required for rational thinking about science in relation to personal, social, political, economic problems, and issues that one is likely to meet throughout life and become functional. Transition of science from laboratory to the "real world" and "real life" is the changing face of scientific literacy to functional scientific literacy.

These two realms that are religion and scientific education move hand in hand making scientific literacy functional in everyday life. To deal with the problem of inner discard, modern man has to turn for help to religion- to science of spiritual nature of man. It is clearly expressed by the great astrophysicist R.A. Millikan in his autobiography that "it seems to me that the two great pillars upon which all human well-being and human progress rest are, first the spirit of religion (spiritual ability) and the second the spirit of science (Knowledge). Neither can attain its largest effectiveness without support from the other". Science is not merely a storehouse of facts to be used for material purposes, but is one of the great adventures to be ranked with arts and religion as the guide and expression of man's fearless quest for truth (Gopalan, 1995) <sup>[4]</sup>.

### 7. Conclusion

Religion is a human activity and product of man's mind. The only purpose of religion is to collectively and individually educate their followers to live mentally, thoughtfully, intellectually, physiologically, nutritionally, physically and academically in sound good health in harmony with the laws of nature. Human mind can imagine everything logically and scientifically for exploring new thing which can be used in social welfare. It is led by religion and realize by scientific education. Religion works over society accepted as one of the strongest sources and means of social control. It never divides the human being as they belong to different religion. It only lead and provide the right path for living scientific life. Because its ultimate goal is to make man's life ease, scientific and realize the real meaning of Life. And it will be fruitful if each and every member of society makes their scientific literacy functional in their day to day life. There is natural power of energy which can change their form but it does mean it is beyond natural system. We should move with both religious thought (spiritual thinking) and scientific education (practical knowledge) hand in hand then only one can make it functional in their real life and would be able to sort out their daily life problem. Whatever we people providing scientific education to our new generation must be useful that is functional in their life and in society rather than thrusting dead information in their mind.

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