
Transforming Engineering Education by Assimilating Quintessential Essence of Spirituality for Impeccable Governance and Leadership

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Abstract: From time immemorial our ancestors are diligently striving to harness the application of the science in day to day life. In those days science were in formative phases unlike what is visible these days. Science has created unparalleled spectacle everywhere. Social and spiritual scientists have the same conviction when they say that science without spirituality will do no good but culminate in the conflagration of communal violence and war of attrition and eventually the cataclysm. What advantage did we get of the advance product of science i.e. atom bomb: destruction of Nagasaki and Hiroshima of Japan. Science without spirituality will cause cataclysm and annihilation of the world. In order to have regulated use of science only for humane causes, everybody needs to assimilate and imbibe quintessential essence of spirituality in ourselves. Scientific and spiritual implication of robust and optimal control from the standpoint of their pragmatic impact on the holistic development of human being has been elegantly highlighted in the present paper. In this paper, it has been highlighted that for Impeccable Governance and Leadership in any country, assimilation of quintessential essence of spirituality in engineering education is prerequisite.

Keywords: Assimilation, Engineering Education, Environment, Impeccable, Immemorial, Spirituality

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1. Introduction

Science and Technology has made quantum jump in every walk of life [1-16]. With the help of science we are able to accomplish our task in the twinkling of an eye. Hundred years ago if anybody would have talked about the form of science what is visible in present time, it would have looked as a day dreaming phenomenon. Many researchers have worked in the field of modern technology like robust and optimal control field [1-9]. Robust control deals with the fact that whether the controller designed for any system is able to suitably work under parametric uncertainties. Similarly the optimal controllers deal with optimizations of time and fuel consumptions etc. But ironically, nowhere we came across the spiritual implication of robust and optimal control in our day-to-day life. From time immemorial, world over, the aboriginal peoples, unmindful of the scientific and technical implication of robust and optimal control, have made their physical bodies robust enough to take optimal performance out of it. On the contrary, these days, people have become completely dependent upon science and technology in every walk of life and thereby promoting consumerism and for that matter the ecological misbalance due to environment pollution [19-24].

No doubt, science has made phenomenal growth but what is the end result? Everywhere there is misuse of the by-product of science due to lack of spirituality. In the first instance the reason for burgeoning indiscriminate population growth may also be attributed to lack of spirituality [25-28]. In the epic Gita, a lot of emphasis is laid on maintaining celibacy and its positive outcome is discernible for the population growth control. Unfortunately under parochial prejudices some religion is not able to address the population hazard and indiscriminately increasing the unconscientious human beings who are hell bent on destroying the civilization globally. Destruction of world trade tower of Amerika is

glaring example of this unconscientious human population. Mahatma Gandhi has given special emphasis on holding fast and thereby maintaining celibacy and control of mind [27]. There are four things which are common between human being and animal: Eating, Sleeping, fear & mating. Only thing which is not common is power of thought and spirituality. So science without spirituality will bring the human being closer to animal [25-28].

It is high time when scientists, technocrats, social activists and others need to ponder over the advantage and disadvantage of science and technology. Ultimately, there comes the valid question in the mind of normal human being that what we got from science? Visiting from one place to other place become easier and fast. Communicating between one person on one part of earth and other person on the other part of the earth became easier. Overall it has made our life very easier. Unbelievable changes have taken place in every field of life [1-16]. Development of science and technology is irreversible process and very dangerous for ecology. Indiscriminate use of science has increased the pollution to a dangerously high level. People are going to be mechanical day by day. Their emotional and empathic quotient is waning day by day. Agricultural lands are covered up by heap of concrete everywhere. Use of science in Agriculture has made the life of livestock and animals very vulnerable. With the increase of population a lot of deforestation is going on which virtually depletes the range of sanctuaries. With the effect of global warming ecological disturbance is discernible everywhere [19-24].

These days even the slightest altercation and estrangement lead to murderous situation. Earlier, weapons of mass destruction were not prevalent so situation was not so alarming in contrast with what we see these days. A slightest provocation may lead to extermination of weaker opponent. There is sectarianism, superstitions, fanaticism, bigotry, jingoism etc. prevalent everywhere in the world which is nothing but by-product of education devoid of spirituality. History bears testimony to the fact that due to all these abovementioned evils prevalent in the society, many wars have been waged and continue to happen these days too which drenched the mother Earth often & often with blood. So only way out to save mother Earth is by transcending beyond all these parochial and narrow approach of life [25-28].

The Earth is but one planet and all these imaginary lines i.e. boundary lines have been drawn by the vested interests everywhere. In our Indian philosophy we say that '*vasudhaivaikutumbkum*' which implies that the people in the whole world are like our kith and kin. A person is himself an enemy or friend of his own self. So, all these savagery and barbarism will come to a naught with the visualization of the feeling of universal brotherhood, love and mutual compassion. Science will be really beautiful and prove to be boon if we use it with spirituality in mind. If science had been used with spirituality no Nagasaki and Hiroshima would have taken place. This world would have been like heaven and paradise for us [25-28].

The implication of the Indispensability of tenacious bond between science and spirituality will become clearer in the following sections.

2. Spirituality an Antidote to Anger and Distress

Spiritual practices and meditation helps dissolve anger and distress. It pre-empts disappointments that we might experience by having no expectation of others. Root cause of anger and distress is our vicious cycle of ego. Meditation and spiritual practices dissolves the ego. Unresolved anger in a strong, assertive and aggressive ego is the basic ingredients of a recipe for violence. A weak, insecure and low level ego incubates and harbinger the depression. We owe it to ourselves to be wholesome individual with holistic view to make the world around us a safer place. Here is recipe for control of mind.

In chapter VI, the great epic of Bhagwad Gita, through different verses Lord Krishna lays a lot of emphasis as to how to control this fickle and vacillating mind because without perfect control of mind, nothing can be accomplished in this world. Since it is not possible, without controlling the senses to be one in steady wisdom; it is strongly recommended that in the practice of one's spiritual austerities one ought to leave no stone unturned to control the mind. The senses are so turbulent that they can forcibly take the mind of even a person of discrimination, for the senses are very agitating.

Thus Krishna says- "One who is accustomed to dreaming about sensual pursuits considering them worthy of indulgence, a strong attachment develops for them. From this strong attachment arises addicting desires for them, from these addicting desires, there flares up anger when these addicting desires are not satisfied. Continuing, Lord Krishna explains that anger engenders the state of delusion and loss of discrimination. Delusion results confusion and lapse of memory. Loss of discrimination results bewilderment regarding the injunctions of the scriptures and the instructions of the spiritual master. The end result of these is the complete stupefaction of one's intelligence. From the destruction of one's intelligence one spiritually perishes becoming dead while alive as it were.

Lord Krishna further explains that whither so ever the fickle mind flutters and flickers about to wander in infatuation away from the *atma* or soul in pursuit of the objects of the senses, let all efforts be made to withdraw the mind therefrom and guide it back persuading it convincingly the fact that the *atma* itself is the supreme goal of happiness.

Then Lord Krishna responding to Arjuna's queries concurs that undoubtedly the mind is extremely difficult to control and similar to confining a cyclone in a pot; but he should shake off his trepidation and make the effort, for the mind can be brought under control by the repeated practice of meditation. One should first withdraw the mind from the influence of sense objects and then focus the mind in concentration internally on the *atma* or soul. By practicing indifference towards sense objects, dispassion will arise in the senses and the mind will show no interest and will not gravitate to anything else other than the *atma*. Hence by following the spiritual injunctions of epics one may get freedom from stress and distress in life. Therefore by assimilating ethos of spirituality in science may bring about paradigm changes in the mode of governance and leadership all over the world.

3. Spirituality: An Antidote to Environmental Degradation by Technological Outreach/Advancement

Though, it is the need of the hour that we all exploit the scope of science in every field of life for the betterment of our lives. In fact nature has provided everything in sufficient quantity to fulfill our need but not to fulfill our greed because there is no end to greed. As it is well known fact that spread of science and technology has taken a heavy toll on the environment. In order to replenish the damage being caused due to indiscriminate exploitation of science, some counterbalance measures need to be taken. Hence in keeping with this ethos, scientific program of afforestation is indispensable for providing protective arm of invincibility against environmental degradation as a result of technological advancement and outreach. This practice will expeditiously restore the ecological balance of region. Afforestation must be carried out both intensively and extensively on a war footing scale. Afforestation should be carried on the banks and ponds, canals, dam, lakes, rivers and reservoirs to preclude the further erosion of landscapes. All these accomplishments are possible only when we are spiritual in our thoughts and action. Spirituality forces us to move away from our own selfish desire i.e. from exclusive to inclusive approach. Our scriptures provide us great insight and foresight to see clairvoyantly the great symbiosis between science and spirituality.

In Gita a lot has been illustrated as to how the perfect ecological balance may be established amidst all this ubiquitous technological outreach. Here through verses 14 and 15 of chapter third, Lord Krishna highlights the way to protect and preserve ecological balance. He says that- All living beings are born from food turned into reproductive energy, which are produced from rains. Rains are produced by performance of *yagna* or sacrifice, and *yagna* is born of prescribed duties. Regulated activities and duties are prescribed in the Vedas, and Vedas are directly manifested from the supreme personality of Godhead. Consequently the all-pervading transcendence is eternally situated in acts of sacrifice.

The main cause of ubiquitous problem is that we have moved away from the Vedic injunctions. If we all adhere to the injunctions prescribed in Gita we are bound to get perfect ecological balance and we can live maintaining perfect harmony with the nature. In order to face any challenge that is hurled at us with perfect state of equanimity and equipoise, spirituality is sine qua non.

4. Role of Spirituality in Contemporary World of Technology

Religion is a medium and expedient to extract and assimilate quintessential essence of spirituality. True crux of spirituality gives us guidelines to develop our own thought patterns in order to bring happiness, prosperity, health as well as stress free life. Thus even in today's world which depends entirely on technology, religion and spirituality has important role to play. Notwithstanding the technological feats everywhere, monumental question still persist before us- "are we really happy and stress free and enjoying our lives"?

These days, cybercrimes are looming large over the horizon in addition to traditional method of wars. Every countries of the world are leaving no stone unturned to fight this menace of cyberattacks or cyber weapons. Information technology domains are becoming more and more critical due to imminent cybercrimes or cyberwars. Unfortunately many notorious terrorist organizations are using internet technology for promoting their cause to proliferate cybercrimes. Cyber-warfare has become a frontline priority for even conventional armies. Cyber-weapons have potentials to cripple an adversary's strategic networks and energy grids, banking and communication and can even sabotage a country's nuclear programme. Every country is desperately engaged to synergize the resources and capabilities to meet these challenges of the future. If these weapons of science and technology go in the hand of unscrupulous elements then nothing but destruction and depredation will take place and hence conscientious amalgamation of science and spirituality may come to a great rescue to the protection of vibrant human civilizations.

Religion and spiritual philosophies can help in coping with day to day chaotic & perturbed situation. It is only spirituality that binds and unites us with our core strength and we are aligned with our own self. All our decisions are automatically correct if we are spiritual. Technological world has given us the concept of sophistication and in a similar way our belief system need to be upgraded nonchalantly. Spirituality is combination of two words: 'Spirit plus Ritual' when spirit is put and embedded with ritual it becomes spiritual. But ironically we have left spirit behind and only caught hold of rituality which is man cause of improprieties everywhere.

Though all the religion portrays and promotes spirituality, yet, it has been found based upon meticulous observation that Indian philosophy gives more freedom of thought. This is discernible from the fact that it is only philosophy in the world which is inclusive in its approach. History is replete with numerous examples when refugees from different part of world took shelter in India from time to time. This open minded acceptance can be seen in the coexistence of various religions in India. There is one verse in Rig-Veda which says- '*aanobhadrahratvayantuwiswatah*' which implies - '*let the noble thought come from every possible direction of the world*' which ventilates the same ethos. Based upon this thought, India became breeding grounds for spiritual renaissance.

Any religion which does not bestow us the absolute freedom is more like a ritualistic organization or system which distracts and disconnects us from our real nature of peace and engenders antisocial and inimical sentiments. These profane activities stigmatize the religion which is nothing but business run in the name of religion to proliferate hatred and abhorrence in the society. This hampers and impedes the spiritual growth of a person and makes an otherwise good human to be governed by animal instinct leading to the perversion to human mind. Real religion in the truest sense gives absolute freedom of mind.

5. Robust and Optimal Control: Technological and Spiritual Perspective

A designed system is said to be robust if it performs satisfactorily under parametric uncertainties. In a similar manner a designed system is said to give optimal performance if it consumes least amount of energy and minimum time. Robust and optimal control of any system comes under modern control approach of engineering branch. A good many researchers has found out the scientific and technical implication of robust and optimal control by applying for different mechanical and electrical systems [1-9].

Taking cognizance of the rudimental discussions in the foregoing paragraph, spiritual implication of robust and optimal control may very well be transpired in context with human as a system. As it is well known fact that human being is most complex system in the world. By emulating and inculcating the quintessential essence of spirituality as prescribed before, there may be unbelievable transformation in the overall development of mind, body and soul of human being. The way energy is being consumed indiscriminately, especially by developed countries, that day will not be very far when it has dangerous repercussions on the environment [19-21].

Human as a system may be made robust for delivering optimal performance if the abovementioned spiritual injunctions are followed in true spirit. In ancient times people in different part of the world, by following the spiritual prescription were able to make them robust to face different kinds of vicissitudes of lives. It is a matter of fact that those who follow spiritual path, consumes less energy and thereby does less harm to ecology. In order to lead a lavish lifestyle, people have made energy consumption a symbol of status. Still in many third world countries, the children of impoverished parents are not able to study properly because of being devoid of the basic facility of lighting system and infrastructural development. People are generally seen to be self-centred and un-empathetic in their attitude and are least bothered about the holistic development of the society due to lack of pervasive spiritual ambience. It is opportune moment when world over spiritual education be proliferated and the spiritual implications of robust and optimal control of body, mind and soul of human being be thought. There is no dearth of knowledge and science these days in the world, if anything is indeed lacking that is spiritual and empathetic component in them. The world is not suffering as much from illiterate and uneducated as from unspiritual and dishonest educated persons. Therefore there is great requirement of transforming the engineering education methodology by assimilating quintessential essence of spirituality for impeccable form of governance and leadership in the world.

6. Conclusions

In this paper, it has been highlighted that for impeccable Governance and Leadership in any country, assimilation of quintessential essence of spirituality in engineering education is prerequisite. From time immemorial our ancestors are diligently striving to harness the application

of science in day-to-day life. In those days science were in formative phases unlike what is visible these days. Science has created unparalleled spectacle everywhere. Social and spiritual scientist have same conviction when they say that science without spirituality will do no good but culminate in the conflagration of communal violence and war of attrition and eventually the cataclysm. Science without spirituality will cause cataclysm and annihilation of the world. In order to have regulated use of science only for humane causes we all need to assimilate and imbibe quintessential essence of spirituality in ourselves. A country having only scientific feats cannot become world leaders in the truest sense but a country having both scientific & technological power accompanied with spiritual power may become leader in the world. Hence spirituality is a soft-weapon of mass reformation not the mass annihilation and is desperately required for establishing peace in the world.

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