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Rote Learning: A Transcendental Bridge between Science & Spirituality

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Abstract: For eons the transfer of knowledge from one generation to the next generation took place primarily because of rote learning. Especially in India, the transcendental form of knowledge such as that of Veda's is preserved because of rote learning. It is no longer a secret truth that spiritual and value added education is as much required as that of scientific knowledge in view of the burgeoning crisis of inhuman acts such as barbarity and terrorism everywhere which if not controlled may engulf the whole human civilization. In rural and far flung areas, even science is learnt by rote learning initially and then in subsequent step it gets automatically converted to activity and creativity based learning with the help of incessant rumination process. So rote learning is sine-qua-non for establishing the symbiosis between science and spirituality from incubation stage to pragmatic stage in human civilization. An honest endeavor is made to resurrect the glory of unsung rote learning which otherwise was in oblivion and abandoned state.

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1. Introduction

Notwithstanding the technological advancement all around, the moot point everybody is interested to discuss is ethics and spirituality. The mother of all ethics and spirituality is oriental country's scriptures especially the Indological scriptures that originated from India. These mothers of ethics and spirituality could be preserved only due to rote learning. Science and Technology has made quantum jump in every walk of life [1-18]. Almost all the technical advancement and industrialization requires conventional sources of energy which releases poisonous gases very harmful for environment. Due to harmful effects of conventional sources of energy, researcher world over started thinking about using renewable sources of energy [19-24]. No doubt, science has made phenomenal growth but what is the end result? Everywhere there is misuse of the byproduct of science due to lack of spirituality.

Mahatma Gandhi has given special emphasis on holding fast and thereby maintaining celibacy and control of mind [27]. Gandhi and numerous other great personalities of the world derive inspiration and consolation from Indian scriptures such as Gita. If ancient monks of India wouldn't have devised the

method of rote learning and dispensation of passing this transcendental knowledge from one generation to other, the present generation would have been devoid of all these divine knowledge. 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].

In the wake of the proliferation of savagery, barbarity and terrorism everywhere in the world, it is high time and need of the hour that larger and undivided attention be paid to discover the root causes behind all these form of profanity. Despite abundance of science and technology, world is heading towards massacre and genocide. Nothing in this causal world happens without a cause. The main cause, in my view is the incessant waning of moral values in society and this primarily happens because of wrong interpretation of religion and distortion of a quintessential facts enshrined in different famous epics of the world. Basic purpose of evolving different religion ought to be to doing away with the savagery, barbarity and for that matter the predatory instinct from human being. The way demonic forces are raging their ugly head, very soon good people will be outnumbered and overpowered by demonic forces. It reminds us the mythological war between demon and demigods in Indian scriptures.

After meticulous observation & introspection it churns and that the main cause of unchecked proliferation of barbarism in every walk of life is our nonchalance towards promoting ethical and moral values in society. In order to promote ethical and moral values, complete metamorphosis and synergistic amalgamation of quintessential essence from religious scriptures (Dharma Grantha) of Indian origin and modern science & technology is must which requires preserving the vibrant and inclusive culture of India. In order to preserve this great cultural heritage of India rote learning has played a pivotal role. From time immemorial, ancient order of monks of India has endeavored a lot to maintain perfect harmony between science & spirituality. It is no longer a secret that scientists & thinkers all over the world is looking towards India with a great expectation to assimilate and imbibe the crux of its rich cultural and spiritual heritage. They spare no efforts to visit India for their spiritual enlightenment. In order to preserve this rich cultural heritage, there is no way out but to preserve the Sanskrit language which is compendium and reservoirs of ethical & spiritual knowledge and for that to be accomplished rote learning deserves special credit.

As said earlier it was only because of rote learning that these transcendental form of knowledge from Indian epics are still preserved and have imaginative enduring and heading power and continue giving a soothing and healing touch to the otherwise disorganized and disgruntled society. Through this paper no efforts has been spared to divulge the symbiosis between the healing power of Sanskrit verses and modern science and technology for making a society dynamic and vibrant, all over the world.

Just like the indispensable role of rote learning in preserving the Sanskrit text, it will not be out of place to emphasize the importance of rote learning for promoting the scientific knowledge too. Here we need to circumspectly pay attention towards the invigorating implication of rote learning in preserving the great divine and spiritual Sanskrit text vis-à-vis science. In rural areas numerous students just crams the scientific laws and principles in the initial stages and then slowly and steadily, they ruminate the learnt material one by one and then automatically there comes the stage where they switch-over to creativity based learning.

Here it will be very worthwhile to narrate my example of metamorphosis from showing zero interest to full interest in science due to rote learning. As we were devoid of good teachers in our village in our childhood, on the advice of my least educated parent, we crammed many laws and hypothesis of science e.g. Newton's laws of motion, Archimedes' principle, Newton's law of gravitation etc. (to name a few) in the initial stages and then in later stages we used to take out one by one from memory and cogitated over it. This way we got tremendous and unimaginative benefit of transforming the abstract and crude from of knowledge to creativity based learning. In other words we were able to successfully transform the theoretic knowledge to practical knowledge. Implication and importance of rote learning case wise will be divulged out in details in the following sections.

2. Implication of rote learning in science and technology

Till now, we kept deafeningly hearing about creativity based learning only, nobody talked of very g

important yet unsung 'rote learning'. In this section a new dimension has been highlighted which may bring about a paradigm shift in the set pattern of thinking process. In order to percolate and spread the benefit of education to far-flung areas, where the underprivileged children are often seen to be devoid of good teaches, rote learning for them comes to a great rescue. Initial stage of cramming or getting some knowledge by rote and later stage of cogitation and rumination make them a good teacher themselves and bring about a revolutionary change in the methodology for attainment and dissemination of knowledge. Vivekananda once said- "Even if one limb of body is dysfunctional or paralyzed, it makes whole body dysfunctional and paralyzed". So likewise the world as a whole will be healthy, wealthy and wise when we guarantee that each and every person of the entire world is healthy, wealthy & wise.

Creativity based learning are available to those who are born with a silver spoon in their mouth but for those numerous have-nots and destitute, rote learning can only be materialized. So, in absence of rote learning, Swami Vivekananda's dream won't have been redeemed. Even otherwise, for those who belong to affluent family, there is no way out except cramming of alphabetical knowledge and tables in formative mathematics. It has been practically seen that those who are poor in cramming skills, especially as far as basic alphabetic and mathematical tables are concerned, remain weak in mathematics. As mathematics being the backbone of engineering science, one cannot aspire to become a good engineer and scientist if their mathematics is poor. In medical science also rote learning plays very important role when it comes to memorize the name of medicines for numerous diseases where other form of learning almost fails. It is a matter of fact that a person becomes good doctor whose memorizing skills are perfect.

Thanks to rote learning that aspirants from rural backgrounds are giving tough competitions to the aspirants belonging to urban areas and sometimes the former outperforms the latter. Promoting the virtue and pragmatic importance of rote learning may bridge the forbidding gap between village and cities because education is the fastest vehicle for upward mobility in society. Once the citizenries are educated, they may intermingle and develop the acclimatizing tendencies among themselves, which will further work as a panacea for creating egalitarian society everywhere in the world and no longer there will be any conflict between peoples based upon any parochialism. In the following sections different case studies have been described.

A. Case Study of Understanding Newton's Laws of Motion by Rote Learning.

To illustrate the importance of rote learning in understanding the Newton's laws of motion a step by step process is described below. Being devoid of good teachers I followed the below mentioned step in my childhood to understand the scientific knowledge. This is not me only numerous hapless children have to follow the same path.

Step1:Memorizing the Newton's laws of motion.

Step2:After getting by heart say first law of motion, we started to visualize the implication practically by taking any object and began experimentation to verify the veracity according to the ethos of the law and to a great surprise; my joy knew no bounds when we came to prove the veracity of the law. Similarly understanding 2nd law of motion, we took an object and started increasing force slowly and it got accelerated accordingly. Similarly we increased the mass in second instance and it was observed that with the increase of the mass of the body and keeping the magnitude of force constant, the body got decelerated and thus veracity of 2nd law of motion also got verified. Similarly the veracity of 3rd law of motion also got verified. In fact this look very simple but in order to understand the fascinating beauty of rote learning one requires having a large degree of empathy. When this was experimented, book was not with us. We just took out the knowledge already swallowed by rote learning and performed the experiment.

B. Understanding law of conservation of energy by rote learning.

As the law of conservative of energy states that- "energy can neither be created nor destroyed only transformation of energies takes place from one form to another". We derived self-inspiration from my first experiment of verifying the veracity of Newton's laws of motion. Again through rote learning, law of conservation of energy was divulged out in absence of any book at the time of grazing the livestock and cattle in the fields. We picked up a stone and dropped it from some height and in a crude way we visualized how the velocity went on increasing which buttressed the

concept further as to how the potential emerges got converted into kinetic energy.

Similarly getting by heart many scientific topics at first instance and repeating those experiment while grazing the cattle or doing some other household chores, I learnt a deluge of basic Physics which paved the way for contagious expansion of this indispensable method to other field of science also. This kind of example may work as a great motivating force and panacea for rural peoples.

3. Newton's Example

There is no exaggeration in accepting the indispensability of rote learning especially for downtrodden populace of the world who are devoid of many amenities and have to be mandatorily engaged in house hold work. We all know about scientific achievements of Newton but very few of us know as to how he became so great a physicist. Once an epidemic broke out in his village and therefore quarantines was imposed and luckily he was sent to live in his relative's place where epidemic effect was nil. Breaking out of epidemic and imposition of quarantine proved to be a blessing in disguise for him and was really a great turning point not only in life of Newton but for the whole lot of ensuing scientist who first of all learnt what was discovered by Newton and extended it further. Newton involved himself in different household chores but kept experimenting naturally evolved mathematical and scientific thought developed before him and it is said that it was during these days that he discovered deluge of basic concept in physics and mathematics. Other common children of the world are not similarly blessed with the ingenious brain like Newton, yet, by rote learning, they can experiment everything taking cue from Newton's life and may become knowledgeable to a degree which may bring about revolutionary changes in the field of science and technology.

4. Implication of Rote Learning In Ethics And Spirituality

After we delved deep into the importance of rote learning in the field of science & technology, it is worthwhile to analogically describe it for ethics & spirituality. Why am I fascinated to explore the captivating symbiosis between science and spirituality, will become clear from the fact that science having reached to the stage, if not used ethically and spiritually, will cause a lot of devastation and depredation quite akin to what happened when atom bomb was dropped on Nagasaki & Hiroshima of Japan. Scientific feats devoid of morality and humanity may cause havoc. It is high time when world leader should mandatorily ponder over the ethical use of science to protect and preserve the civilization. Vivekananda while speaking in the inaugural ceremony of parliament of religions at Chicago in America thundered: "If it were not for these demonic forces human civilization would have been far more advanced than what it is now".

In this section importance and implication of rote learning is explained in preserving the rich cultural text in the form of verses which enabled ordinary Narendranath to become Swami Vivekananda. If it were not for the rote learning, the marvelous old civilization would have been quite unheard of and extinct. Nobody ever bother to visualize the fact that whatever Sanskrit text in the form of some divine scripture is prevalent these days is only because of rote learning for the fact that it continued to be passed from one generation to the next generations.

Many of us are followers of numerous spiritual leaders and ancient order of monks and when we delve deep, we find that these spiritual leaders became so only because of the remnant and archive of scriptural texts left behind by their beloved teachers on the sands of time through rote learning. Even person like Steve Jobs, co-founder, former chairman, and former chief executive officer of Apple Inc. got inspiration from internal society of Krishna consciousness (ISKCON) temple which works for the proliferation of divine knowledge of Srimad-BhagwadGeeta&Srimad-Bhagwatam. M.K. Gandhi also highlighted in his auto biography that whenever he remains in doubt he come under the tutelage of Geeta. Great former president of India Dr. APJ Abdul Kalam also referred to Geeta for transcendental virtues. So, somehow or the other the credit behind the successes of many great leaders of the world goes to all these divine scriptural knowledge which got preserved from generation to generation in the annals of history due to rote learning only.

I don't have any compunction to declare about myself that whatever I am today this is only due to rote learning in the initial stages. I also got by heart some Sanskrit verses of Geeta by prolonged recitation. Once committed to my memory, I took it out one by one and began understanding its true implication,

purport and connotation by implacable rumination.

In Gita, Krishna describes true characteristics of a leader by citing his example and says: "O my beloved Arjuna, I have to tread our path very cautiously and circumspectly because if ever anything goes wrong by me, whole society will be chaotic and anarchic situation will prevail everywhere as every human being is following suit to whatever I am doing". At other point through other verse Lord Krishna want to enlighten by saying: "Whatever action a great man performs, common men follow and whatever standards and example he sets by exemplary acts, all the world contagiously pursues the same thing". All these great messages got preserved due to rote learning only.

History is replete with numerous examples where due to lack of spirituality horrendous murders were committed by bigots and warmongers. In India one famous Sikh Guru was mercilessly beheaded because he didn't get ready to jettison his religion to embrace other religion and become apostate. Due to hatred and bigotry two young sons of another Sikh Guru was also stuffed in walls live by the same cruel ruler. Due to lack of spirituality hundreds of children were mercilessly killed in Pakistan. Due to lack of spirituality, atom bomb was dropped on Japan and was completely devastated. In many other parts of the world, due to selfishness, bigotry, sectarianism and jingoism, every now and then horrendous and merciless crimes are perpetrated. World may a worth living place if spiritualty is imbibed in letter and spirit, thanks to rote learning.

I think, if every modern leaders stick to the message and lessons enshrined in these verses, peace and tranquility will naturally prevail everywhere. It is selfish and narrow mindset of leaders of the world who divides the society based upon caste, creed and religion and fulfills their transitory interests. I think if the world follows the basic tenets of Gita, every place may be paradise and worth living and every person may develop in them God like characteristics. Utilizing the message contained in these precious epics, preserved by rote learning, world will be free from all kind of evils.

5. Role of Rote Learning in Synthesis of Science & Spirituality to Save the Dying Civilization

There is no exaggeration in the fact that science having reached to such a vertiginous stage that if not used spiritually may create a lot of devastation and eventually may harbinger the end of civilization from the world. The very source of spirituality is the epics described above, but for rote learning, this treasure of transcendental knowledge would not have been preserved. World over the great leaders are pondering as to how to maintain peace and tranquillity amidst a lot of diversity notwithstanding. The way the mass exodus is taking place from some Islamic countries to safer places in other countries is a matter of concern for every human being. It is only human being where the characteristics of barbaric animal instincts as well as humane instincts are embedded in dormant stage and may depend upon the company or philosophy they are ingratiated with. Same child when trained by dreaded terrorist becomes dreaded terrorist and on the other hand when trained by truly spiritual teacher becomes a great human being. As long as good people are not outnumbered by bad people we may think of peace to prevail but the moment reverse happens civilization will be at stake.

Here it is worthwhile to quote the concluding remark of Swami Vivekananda in the inaugural ceremony of the famous parliament of religion held at Chicago in 1893-"Had it not been for these horrible demons, human society would be far more advanced than it is now. But their time is come; and I fervently hope that the bell that tolled this morning in honour of this convention may be the death-knell of all fanaticism, of all persecutions with the sword or with the pen, and of all uncharitable feelings between persons wending their way to the same goal". Vivekananda savoured and relished all these knowledge from different divine epics well preserved and enshrined on the sands of time due to rote learning by our great ancient order of monks. Hence spiritual knowledge preserved by way of rote learning may work as a panacea for scrupulous use of science.

6. Conclusions

In this paper the role of an unobtrusive topic has been highlighted vis-a-vis the indispensability of spirituality in science. For eons the transfer of spiritual knowledge from one generation to the next generation took place primarily because of rote learning. Especially in India, the transcendental form of knowledge such as that of Veda's and Geeta's is preserved because of rote learning. It is no longer a secret truth that spiritual and value added education is as much required as that of scientific knowledge in view of the burgeoning crisis of inhuman acts such as

barbarity and terrorism everywhere which if not controlled may engulf the whole human civilization. In the third world countries especially in rural & far flung areas, even science is learnt by rote learning initially and then in subsequent step it gets automatically converted to activity based learning with the help of incessant rumination process. So rote learning is sine qua non for establishing the symbiosis between science & spirituality from incubation stage to pragmatic stage in human civilization. An honest endeavour is made in this paper to resuscitate and resurrect the glory of unsung rote learning in preserving the rich cultural heritage which is indispensable to save human civilization from annihilation.

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