



CONCEPT LEARNING IN CHEMISTRY INTEGRATED WITH BHAGAVAD GITA VERSES FOR PROMOTING LIFESKILLS AT SECONDARY LEVEL

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Abstract

The cognitive dimension among the people is critically preferred in order to face the challenges and problems in human life. The fully fledged knowledge can avoid the dilemma in choosing the appropriate solution for the disputes along with the enhancement of certain essential lifeskills. The needs of lifeskills are more prior to lead a comfort life in the society with reduced attempts of violence and suicides. The cognitive life skill enables the human to be courageous and confident. Hence, the investigator analyzed the life skills promulgated in the song by God, the most revered Holy Scripture referred to as Shrimad Bhagavad Gita that highlights the advices given by Lord Krishna to His friend Arjuna at the battlefield of Kurukshetra. Bhagavad Gita encompasses the role of a mentor and an adviser in everyone's life. Therefore, it becomes more relevant in the field of education for promoting life skills .Hence, the investigator conducted an in-depth study on Integrating Bhagavad Gita Verses in learning Chemistry concepts for Promoting Cognitive Dimensions in Lifeskills Learning at Secondary Level by using an appropriate qualitative method called hermeneutics. The present paper prioritized on the relevance of imparting lifeskills by integrating the holy verses with the concepts in Chemistry among students at secondary level.

Keywords: *Life Skills, Cognitive Dimension, Bhagavad Gita, Concept learning in Chemistry*

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INTRODUCTION

The life undergoes its completion when the people are overcoming their issues while travelling through the life. The problems and challenges are actually remaining without any reliable solution is due to the lack of values and lifeskills based on cognitive dimension especially among the young generation. All such skills can be acquired through the best tool called 'Education' more specifically, 'Quality Education'. Such a valid process can definitely re-frame each one of them and help to define

the personality. It maximizes the human potential and helpsto face the transitions from childhood to adulthood, from education to work, and from unreflective development to a responsible one. Thus, the quality in education is possible through integrating the ancient and ever relevant Scripture Shrimad Bhagavad Gita with the concepts in Chemistry to promote life skills among secondary school students. The simultaneous mastering over the science discipline and life skills promote the cognitive dimensions laid by the UNICEF in 2015 for constructing a well advanced society.



NEED AND SIGNIFICANCE

The period of stress and storm creates many challenges in the life of humans especially among students. The students undergo transition period during the growth and development in which they learn many new habits, behaviours and give up some old habits. They become an easy prey to emotional instability and may exhibit violent behaviours at home and school due to lack of life skills. All these pose a major threat to the positive development mainly among adolescent students. The problems among students can be prevented by enabling them to cope up with their challenges and develop positive attitude through the acquisition of life skills at cognitive level. It is well proved by the initiation taken at the region, Middle East North Africa to promote Lifeskills and Citizenship Education (LSCE) under United Nations Children's Fund (UNICEF) that is kicked off in 2015 with two major components: the development of a Conceptual and Programmatic Framework (CPF) in order to improve the learning and invest the best in economic, social and individual aspect lies under four dimensions.

The life skills based on cognitive dimension such as creativity, critical thinking and problem solving cannot be developed as ready-made but it can be gradually improved among the students through the process of education. So the integrated education with a spiritual aspect can make remarkable change among students. For that, there exist one and only ancient, sacred and valuable Scripture called Shrimad Bhagavad Gita which shoots out the essential lifeskills according to the life situations. Bhagavad Gita has its own peak position everywhere and at anytime but the awareness about the relevance of it becomes

fading day by day. Therefore, exploration and analysis of Bhagavad Gita envisage much efficiency and uncover maximum ways to deal with the reality and withstand as a supporter to help the educators. This indicates the utility of the Scripture, Bhagavad Gita in the field of education. The study integrates the cognitive dimensions of life skills put forward by the UNICEF which had already mentioned in the song of the Lord, Bhagavad Gita, thousand years ago, with the discipline Chemistry. Since such attempts are very rare in the field of education, the investigator has decided to explore more in this area with practical implications in the field of education.

STATEMENT OF THE PROBLEM

The present study is entitled as **Concept Learning in Chemistry Integrated with Bhagavad Gita Verses for Promoting Lifeskills at Secondary Level.**

DEFINITION OF KEY TERMS

Concept Learning in Chemistry: The abstract idea or information perceived by the individual based on the subject chemistry during the process of education. The meaningful and purposeful understanding on subject knowledge enhances the cognitive dimension among learners.

Bhagavad Gitaverses: 'The Gita' referred in English as "The Song of God popularly known as Shrimad Bhagavad Gita is a part of the Mahabharata, the world's longest poem consists of 700 verses.(Wikipedia, The free Encyclopedia). The verses from Bhagavad Gita are integrated with the concepts in the subject Chemistry for promoting life skills.

Life skills: UNICEF defines life skills as "a behaviour change or behaviour development approach designed to address a balance of



three areas: knowledge, attitude and skills” (UNICEF, 2015).

In the present study the life skills based on cognitive dimensions like creativity, critical thinking, and problem solving, put forward by UNICEF were selected.

OBJECTIVES

1. To find out Bhagavad Gita verses related to the life skills based on *Cognitive dimension* such as creativity, critical thinking and problem solving.
2. To integrate Bhagavad Gita verses with the concepts in Chemistry for promoting life skills based on cognitive dimension among students at secondary level.

METHODOLOGY

Hermeneutic method was used to integrate Bhagavad Gita verses with the concepts in Chemistry for promoting life skills based on cognitive dimensions among students at secondary level

ANALYSIS AND INTERPRETATION

The Chemistry concepts mainly deal with the chemical aspects of living and non-living things in the planet. The concepts in Chemistry were integrated with Bhagavad Gita Verses for promoting the life skills based on cognitive dimension laid down by the UNICEF LSCE in 2015. The actual sense of providing the life skills among the learners is possible through blending those skills and values with the advice given by Lord Krishna to Arjuna in the battle field about 5000 years ago. The verses related to corresponding life skills have much importance in today's world. The researcher deeply analyzed the Bhagavad Gita verses related to the life skills based on cognitive dimensions and

the related concepts in Chemistry to promote life skills such as- Creativity, Critical Thinking and Problem Solving.

Life skills based on Cognitive dimension (UNICEF, 2015)

1. Creativity

1.1 Chemistry learning concept: Structure of Atom, which definitely provides a detailed and direct idea regarding the composition of an atom.

1.2 Verse related to the concept:

*akṣharāṇām a-kāro 'smidvandraḥsāmāsikasya
cha
ahamevākṣhayaḥkālodhātāhamviśhvato-
mukhaḥ (B.G 10.33)*

The sloka 33 from the chapter ten is translated as, “I am the beginning of all like “A” amongst all letters; I am the dual word in grammatical compounds. I am the endless Time, and I am Brahma’ among creators.”

The alphabet “a” is important in Sanskrit as all other letters are formed by combination of the respective half letter with it. Also, “A” being the first vowel also comes at the beginning. Another aspect of Sanskrit is that it combines words to form compound words. “Samasa” is the formation of such words, resulting in the “samapada.” The “samapada” are of six types, of which the “dwandva,” is extremely important, as it retains both words to form a third word. “Radha” joins with “Krishna” to form “Radha-Krishna.” The creation of such words to give a new meaning exemplifies the dynamism of the verse. Therefore, Shree Krishna teaches that he is the initial-born Brahma, who is the driving force over the evolution of entire universe.



1.3 Integration of the Concept 'Structure of Atom' with the selected verse based on the cognitive dimension-creativity.

Creativity develops concrete conceptualization among students.

The atom represents the simplest form of matter, essential for all things in nature. Its origin is unknown but it is the first point of all matter.

The life skill "creativity" can be blended with the concept, Structure of Atom. In the classroom situation, the teacher gives proper instructions about how to construct an Atom Model and the students follow the path and start to think creatively on the same. The objective involved in the task is to create a Model of an Atom by considering our solar system as an example. The role of the teacher is that of a facilitator in order to make the students more creative followed by active participation in learning along with the development of scientific attitude and curiosity.

The teachings of Bhagavad Gita, where 'Brahma' is the creator of everything can fill the idea of the unknown origins of the atom' "as created by Brahma." The idea of creation develops from here as an initial step. This encompasses the significance of Bhagavad Gita in the learning scenario. As per teachings of Bhagavad Gita, creativity is the gift of God and it is the duty of every teacher to develop creative ability in his/her students through developing a sense of creativity explained in Bhagavad Gita .

2. Critical Thinking

2.1 Chemistry learning concept:'Cycle of Acid Rain', gives an understanding about the process behind the formation of acid rain in the nature.

2.2 Verse related to the concept:

*sarva-dvāreṣṭhudehe 'sminprakāśhaupajāyate
jñānamyadātadāvidyādivivṛiddhamsattvamityut
a (B.G 14.11-13)*

The sloka from the chapter 14, verse 11 of the Bhagavad Gita translates as follows: "When all the gates of the body are illumined by knowledge, know it to be a manifestation of the mode of goodness."

'Sattva" predominates when the orifices "sense-openings" of the body are illumined with knowledge. These orifices are : two eyes, two ears, two nostrils, the mouth, the genital and the anus. In this situation goodness predominates as the functions of the body are smooth. This occurs through the influence of God where the origin of all knowledge remains leading to happiness and it is this happiness that indicates the "Sattva."

2.3 Integration of Concept 'Cycle of Acid Rain'with the selected verse based on the cognitive dimension- Critical thinking

Mental stability gives the power of concentration, attention and memory that enable students to pursue effective learning.

The sloka encompasses that the learning can be more effective when only the student is willing to learn with readiness, concentration along with the ability to memorize the previously learned concepts. The effective learning also depends upon the thinking ability of a human being. A being with thinking ability can perceive the new knowledge without any dilemma and correlate those with the learned things soon as possible. This also enhances learning within an individual. It can be understood deeply when the skill is applied with a particular concept.



In science subject, the teacher asks the students to draw the cycle of acid rain then the students initially think the causes behind the falling of rain further gradually moves to the causes of acid rain. The student must be aware about the concept first then only he or she will be able to complete the task properly. The origin of the major reason should be also attained by thinking critically in relation with the current situation of our environment. Thus, the task can be completed. In other sense, the students also may think the reason by integrating the normal rain and assumes the possible reasons abstractly even the students were not actually seen and felt with such an acid rain. Finally, the teacher can help the students by providing the in-depth knowledge regarding the same. Here, the students starts to perceive the task first and then begins to think peripherally from their knowledge and then arrive a possible solutions with the help of the teacher. Such a situation can also be observed in the dialogue occurred within Lord Krishna and Arjuna when the Arjuna is under the task to fight without any despair and deal the situation through possible ways and reach an appropriate solution with the help of His Guru, Lord Krishna.

The critical thinking can be utilized from the concept acid rain itself. Before moving forward, it is important to think backward means the reason for the formation of acid rain. We, all the human beings are well aware about our activities done for our own convenience. The major reason is the release of hazardous smoke containing sulphur dioxide, carbon monoxide etc from the factories, vehicles etc. All these things become change the pH level of moisture into acidic. That's how the acid rain falls. The reasoning habit before doing every activity is very precious and the reasoning should be broad in sense.

The world heaps to the contamination followed by destruction. This is termed as 'adharmā' in Bhagavad Gita. The right action should lead a species to its success but the action of Adharma removes the mode of goodness. Especially, it exists as an opponent of the God. The Lord Krishna explained to Arjuna that, dharma is the way of righteousness or a set of rules lay down. The side of Adharma broke the rules and laws. Hence, Arjuna would have to do his Karma to uphold Dharma in its true meaning. Likewise, the teacher can convince the right way needed to be followed by individuals through the process of education. The teacher can definitely act as the reformer who can only transform the world into a new. The knowledge should be illuminated within each by considering the right way of thinking along with the wisdom mentioned in Bhagavad Gita for the thinking in its real sense and apply the knowledge for the right action. Thereby, the existence of every living thing can be protected without any dirt in the soul.

3. Problem Solving

3.1 Chemistry learning concept: 'Synthesis of Water', the chemical reaction can enable the learner to think in its cognitive way than writing a simple reaction between molecules.

3.2 Verse related to the concept:

*hatovāprāpsyasiswargamjītvāvābhokṣhyasema
hīm
tasmāduttishṭhakaunteyayuddhāyākṛita-
niśchayaḥ (B.G 2.37)*

The verse is translated as "if you fight, you will either be slain on the battlefield and go to the celestial abodes, or you will gain victory and enjoy the kingdom on earth. So elevate with determination to fight."



In the chapter 2 -verse 37, Sri Krishna is speaking about the need to fulfill the duties to which one is called. If Arjuna becomes victorious, a he will have a kingdom on Earth and if he is killed he will attain heaven. Sri Krishna points out that there is a solution for every problem and it is our choice which determines the right action.

3.3 Integration of Concept 'synthesis of water' with the selected verse based on the cognitive dimension- Problem Solving

Problem solving enhances the consciousness in students.

Problems possess a great part within human life .How we approach these worries is the matter of concern. The skill of problem-solving arises from choices. The possible ways to overcome the problem should be planned and have an idea how to choose and use the pathway than surrendering just before the complications. There is nothing in life without a remedy. The above verse implies that how problems can affect the fruitful lives of human beings. If anyone surrenders before the problem, then the situation will end up in drastic destruction of oneself. In contrary to that Lord says in the next verses entails examples to Arjuna about fighting in the war. Both the success and defeat have its outcome. The arrest of mind towards a problem cannot be an appropriate solution. The thing to keep in mind is that, everyone should have a perspective to explore according to own choices and never allow a crack when the encountering begins. The teacher in the classrooms facilitates children to face challenges in the 21st century and solve the problems by themselves.

The problem solving can be implied in the question, "Write down the chemical reaction for synthesis of water" which definitely provides a detailed idea regarding how to write the chemical equation. The teacher provides proper instructions about how to write a balanced chemical reaction and the students follow the pathway. The objective involved in the task is to generate a chemical equation by considering the benefits of water. So the role of the teacher can be considered as a facilitator in order to make the students to think critically followed by active participation in learning along with the development of scientific literacy, attitude and curiosity. It also helps to gain a better understanding about the role, purpose and formation of each droplet of water in the everyday life. It also helps to understand that each droplet is precious for the survival of living things.

We all people are aware about the precious component on the earth that is, water. Every living thing exists in the world is due to the availability of water. Through learning the synthesis of water in the form of a chemical reaction, the students might think that how the hydrogen and oxygen approaches to make a new bond and also about the driving force playing for the process to happen. Does there sustain any miracle from the part of God?

Here, the real problem arises to find an acceptable solution. The teacher can explain those doubts through the spiritual knowledge where the actual scientific theory is still alive. The Bhagavad Gita proclaims the important relation humans have with nature or in other way, the Scripture mentioned that 'we are all one with nature'. Sri Krishna speaks about the five essential elements which are Space (akasha), Air (vayu), Fire(agni), Water (jal) and Earth (Bhumi or Prithvi) that make up all the



matters on this planet earth. All the creatures and living species, plants etc are the product of these five elements, meaning that all are one, emanating from the 'Brahma' or God. He is the controller of every action and reaction. Learning the concept on water followed by its synthesis has that much importance in our life and the problem based on the need to conserve water can be taught. Sri Krishna also pointed out that there is solution for every problem and the individual's duty is to determine the right action accordingly. The teaching of Shrimad Bhagavad Gita encourages students to think wisely to solve problems in life.

CONCLUSION

The luminous feature of Bhagavad Gita is that it teaches comprehensive skills to all mankind with love, sympathy and consideration. The awareness on the Bhagavad Gita should be imparted through the one and only way called "Education". The education cannot be considered as a way to grab knowledge but also a way to cultivate certain life skills. The teacher can stand as a medium through which the students need to know about the slokas written in the Holy book. An ideal teacher can incorporate the holy verses while teaching the concepts in different subjects in the classroom. It enhances learning in the subject along with the development of life skills.

REFERENCES

1. Acharya, S. K. (2015). Lessons from Management from Bhagavad Gita. *International Journal of Research and Development, Volume-4, Issue-2, 2319-5479,*
2. Agarwalla, S., Seshadri, B. & Krishnan, V.R.(2015). Impact of Gunas and Karma Yoga on Transformational

- Leadership. *Journal of Human Values, Volume 21, Number 1, Pages 11-22.* DOI:10.1177/0971685815569590
3. Bayly, C. A. (2010). India, The Bhagavad Gita and The World. *Modern Intellectual History, 7(02), 275-295.* DOI: <https://doi.org/10.1017/S147924431000077>
4. Bhawuk D.P.S (2011). Spiritually and Indian psychology: Lessons from the Bhagavad Gita New Delhi. Springer. ISBN: 978-1-4419-8110-3
5. Care, E., Scoular, C., & Griffin, P. (2016). Assessment of Collaborative Problem Solving in Education Environments. *Applied Measurement in Education, 29, Issue 4, pp. 250 - 264.* <https://doi.org/10.1080/08957347.2016.1209204>
6. Chand, B. (2017). A Study Of Leadership Management From Bhagavad Gita By Following, *Scholarly Research Journal for Interdisciplinary Studies, VOL- 5/43, ISSN 2278-8808.* <https://doi.org/10.21922/srjis.v5i43.11247>
7. Dabas and Singh (2018). Bhagavad Gita Teachings and Positive Psychology: Efficacy for semi-urban Indian students of NCR. *Cogent Psychology, Volume 5-Issue 1,* <https://doi.org/10.1080/23311908.2018.1467255>
8. Dam, G.& Volman, M. (2004). Critical thinking as a citizenship competence: teaching strategies, *Learning and Instruction, 14(4), 359-379, ISSN 0959-4752,* <https://doi.org/10.1016/j.learninstruc.2004.01.005>.
9. Manickam, R., Sharma, B. R. (2015). Need of Bhagavad Gita Concepts in the Present Scenario of Professional



Education. *International Journal of Applied Engineering Research*, 0973-4562, Volume 10, Number 11

10. https://in.video.search.yahoo.com/yhs/search; ylt=AwrxhWbAB6dil2MAwg_nHgx.; ylu=Y29sbwMEcG9zAzEEdnRpZAMEc2VjA3BpdnM?p=chinmayananda+swami+gita+talk&type=co_appfocus1_cr-win-%7E20193%7E¶m1=20190118¶m2=232f3c32-3c94-4326-a720d5edc8202d1b¶m3=converter_%7EIN%7Eappfocus1%7E¶m4=d-ccc7-

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11. <http://bhagavadgita.org.in/Blogs?page=1>
12. <https://mohitkumawat.com/the-bhagavad-gita-ganga-by-mohit-kumawat/>

