

# DEVALOKE

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**Dev Sangha Institute of Professional Studies and Educational Research**

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## The Eternal Divine Light



**Shrimat Acharya Saumyendra  
Nath Brahmachary**  
(October 07, 1946 - June 23, 2012)

Dev Sangha Institute of Professional Studies and Educational Research (DIPSER) was established by Shrimat Acharya Saumyendra Nath Brahmachary Ji (1946 – 2012). A First Class First Mechanical Engineer and a Gold Medalist from the Indian Institute of Technology, Kharagpur, he was awarded the prestigious B C Roy Gold Medal as the best all-rounder graduate of the Institute (batch of 1968).

Pujya Acharya Ji worked in the corporate world for ten years and rose to a senior position with the leading multinational of the day at a young age. Subsequently, inspired by his enlightened Master Shrimad Narendra Nath Brahmachary Ji, he gave up his brilliant management career to become a full-time spiritual aspirant, a brahmachari. He went on to spend five years in intense sadhana (meditation) and two years on pilgrimage across India. The biggest gain from this journey, he used to say, was a secular insight into the country. “It is only when you travel as a common man that you see the real country, come into intimate contact with its people.”

Pujya Acharya Ji continued to devote the rest of his life in the quest for eternal truth, combining it with creative institution building for spiritual and material upliftment of youth. In 1988, he was initiated as the Acharya (spiritual head) of Dev Sangha Ashram at Deoghar in Jharkhand. “Our ashram believes in resurrecting the Rishi culture of ancient India where there was no contradiction between—but rather a harmonious blending of—material well-being and spiritual upliftment,” he used to maintain.

Later, with the support of his friends and Ashram colleagues, Pujya Acharya Ji founded Dev Sangha Seva Pratisthan (DSSP) as the service wing of Dev Sangha to work primarily in the field of education and set up a (10+2) CBSE school, and a college of teachers’ education for women offering D.El.Ed., B.Ed. and M.Ed. courses along with research facilities. DSSP regards women’s education in the tribal state of Jharkhand as the most powerful tool for facilitating their economic empowerment and social upliftment. He, the teacher of teachers, was regarded as an extraordinarily gifted speaker bringing in, in simultaneously a most penetrating and entertaining manner, the quiet and brilliant wisdom of the Rishis of ancient India that informed the lives of king and subject alike, into everyday applications of modern life, organization, coordination and governance to help in identifying and resolving issues, while skilfully deconstructing the dichotomy between matter and spirit that had enervated the land over centuries to its great detriment. A highly respected and sought for guest lecturer, he was regularly invited to speak in premier institutes of the country like the IITs, IIMs, BITS Pilani, Universities, National Judicial Academy, Bhopal (NJA), Management Training Institute Ranchi (MTI SAIL), Indian Institute of Coal Management Ranchi (IICM), Administrative Training Institute Ranchi (ATI) and host of similar institutions both in India and in different countries of the World and spoke eloquently on varied facets of life - contemporary politics to decision-making, self-development, stress management, leadership, motivation and communication and of the joyful and pervasive nature of boundless wisdom

He left for his eternal abode quietly on June 23, 2012. His golden light shall always guide us all in our journey of life.

## FEW THOUGHTS

Teaching and learning for sustainable development (SD) is an educational approach aimed at equipping learners with the knowledge, skills, attitudes, and values necessary to contribute to a more sustainable future. This approach integrates principles of sustainability into all levels and forms of education, promoting a holistic understanding of the interconnectedness of environmental, economic, and social systems and represents a transformative approach to education, aiming to equip learners with the necessary tools to address the complex and interconnected challenges facing our world.

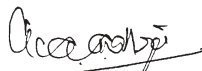
One of the core goals of education for sustainable development is to cultivate critical thinking and problem-solving skills. Students learn to analyze complex issues, evaluate diverse perspectives, and develop innovative solutions. This empowers them to become proactive agents of change, capable of tackling sustainability problems in their communities and beyond.

The need for teaching and learning for sustainable development is more critical than ever as we face a multitude of global challenges that threaten the well-being of both current and future generations. These challenges include climate change, biodiversity loss, resource depletion, social inequality, and economic instability.

More than education, this radical teaching and learning archetype is crucial in today's context and necessitates a holistic and interdisciplinary understanding for developing comprehensive solutions to sustainability challenges spanning multiple disciplines integrating sustainability into various subjects, to help learners appreciate the interconnectedness of environmental, social, and economic systems. This entails encouraging critical thinking and problem solving, fostering ethical and responsible behavior, inspiring active participation and collaboration and leveraging technology and innovation to appreciate and adequately respond to the changing environment.

Educators have a vital role to play in this context. Educators must build resilience and adaptability amongst students by preparing students to anticipate and respond to changes and challenges, sustainability education helps create resilient communities capable of thriving in the face of environmental, social, and economic uncertainties.

Today, the need for teaching and learning for sustainable development is imperative to ensure a resilient and thriving future for all. By integrating sustainability principles into education, we can equip individuals with the tools needed to address current and future challenges, promote social equity, foster economic stability, and enhance the quality of life. Sustainable development education empowers learners to become proactive, responsible global citizens capable of driving positive change towards a sustainable world. By embracing a holistic, interdisciplinary, and lifelong learning perspective, we can cultivate a generation committed to sustainability and capable of addressing the complex challenges of our time.



**(Asim Kumar Chatterjee)**

*Secretary*

Dev Sangha Seva Pratisthan and

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“आमायन्तु ब्रह्मचारिणः स्वाहा ।  
विमायन्तु ब्रह्मचारिणः स्वाहा ।  
प्रमायन्तु ब्रह्मचारिणः स्वाहा ।  
दमायन्तु ब्रह्मचारिणः स्वाहा ।  
शमायन्तु ब्रह्मचारिणः स्वाहा ।”

- तैत्तिरीयोपनिषद् 1/4/2

*“Āmāyantu brahmacāriṇaḥ svāhā.*

*Vimāyantu brahmacāriṇaḥ svāhā.*

*Pramāyantu brahmacāriṇaḥ svāhā.*

*Damāyantu brahmacāriṇaḥ svāhā.*

*Śamāyantu brahmacāriṇaḥ svāhā.”*

- *Taittirīya Upaniṣad 1/4/2*

{ “Let pure seekers of wisdom arrive unto us for learning and wisdom from all directions. Let them arrive unto us by diverse paths. Let untainted seekers of knowledge reach unto us in proper form. Be they blessed with mastery over their senses. On them be conferred the strength of controlling their thoughts.” }



## FEATURE ARTICLE

## From Learned Helplessness to Learned Optimism to Psychological Capital via Positive Psychology – A Journey for Sustainable Development

Biswajit Saha\*, Rupesh Mahato\*\*, Sushanta Mahato\*\*\* and Samirranjan Adhikari\*\*\*\*

### Abstract

*Learned helplessness is a psychological condition in which after experiencing greater stress or depression persons begin to believe that they have no control over their situation. Therefore, they give up trying to change and accept their fate. In opposite to the learned helplessness there is another phenomenon which is called learned optimism. It is the concept of positive psychology that shows that the gift of happiness, like other skills, can be developed. Learned optimism is about accepting and challenging negative thoughts to cultivate positivity and resilience. Again, positive psychology is the study of what makes life most rewarding. It focuses on understanding people's thoughts, feelings, and behaviors from a positive perspective, emphasizing strengths rather than weaknesses. Positive psychology has practical applications in counselling, teaching, interpersonal relationships, and more. It aims to improve health and help people thrive by understanding and improving the quality of human life. Psychological capital (PsyCap) is a strategy that focuses on improving people's mental development. It has four main elements – hope, efficacy, resilience and optimism. In essence, psychological capital is the belief that a person owns the ability to influence health through thoughts and actions. Sustainable development is a simple concept that aims to achieve harmony between human development and the protection of the natural. In fact, sustainable development is the compass and directs to the world environment of prosperity, justice, ecological balance and harmony. Therefore, learned helplessness is not the ultimate phenomenon, for sustainable development there are*

*learned optimism, positive psychology and psychological capital.*

Key Words: Resilience, Self-Efficacy, Cognitive Restructuring, Optimism, Positive Interventions

### Learned Helplessness

When a person cannot find a solution to a difficult problem – even if there is a solution – behavioural scientists call this “learned helplessness”. People who struggle with learning helplessness tend to complain a lot, feel frustrated, and unable to make positive changes in their situation. Learning helplessness occurs when a person experiencing depression begins to believe that they have no control over their situation. They then stop trying to change and accept their fate (Maier & Seligman, 2016).

The concept of learning expectancy was developed by psychologists Martin Seligman and Steven F. Maier. They began to see helpless behaviour in dogs that frequently received electric shocks after hearing the sound (Seligman, 1972). The dogs are then placed in a shuttle box consisting of two rooms separated by a low floor. One side of the floor is occupied, the other side is empty. Previously conditioned dogs did not attempt to escape, even to avoid electric shock by jumping over a small obstacle. The result is that learning non-addiction in animals occurs when the animal is repelled by an attack from which it cannot escape. Finally, the animal should stop trying to avoid the stimulus and act as if it were completely helpless to change the situation. Although it has the possibility of execution,

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it cannot prevent the study from working (Hockenbury & Hockenbury, 2016).

*To investigate this phenomenon, scientists created an experiment (Seligman, 1972).*

- (a) In the first step, the dogs were tied for a while and then released.*
- (b) The dogs in the second group were placed in the same harness but received an electric shock that could have been prevented by pressing the panel with their nose.*
- (c) The dogs in the third group were given the same electric shock as the dogs in the second group, but the dogs in this group could not control the shock. For the dogs in the third group, the shock was completely random and beyond their control.*

*The dog is then placed in a shuttle box. The dogs in the first and second groups quickly learned that jumping over the obstacles eliminated the shock. However, the dogs in the third group did not try to escape the shock.*

*In Seligman and Meier's experiment, dogs that could not survive the electric shock learned to remain helpless. As a result of their experiences, they develop an awareness of hope that nothing they do can prevent or eliminate disappointment.*

When Seligman and Meier tried this experiment (electric shock alternating with noise) on humans, they found a similar effect. Those who could not control the noise on the first try did not even bother to control the noise on the next test; even now they managed to dodge the attack.

This research sheds new light on trauma. People who are repeatedly subjected to abuse and other abusive situations will eventually become helpless if they do nothing to change the situation. It's as if they secretly think that since nothing worked in that situation, nothing will work in a similar situation. Trauma begins to affect two important aspects of mental health – self-efficacy and internal control. Self-efficacy refers to one's level of confidence in one's ability to solve problems and learn new skills. Again, internal locus of control refers to the extent to which people believe that the situation is under control. When these two characteristics are high, the person is self-confident and strong even in difficult situations.

Although this concept relates to animal psychology and behaviour, it can also be applied to many situations involving humans (American Psychological Association, learned Helplessness). When people feel like they have no control over their situation, they will begin to act poorly. This inaction can cause people to ignore mitigation or

change (Nuvvula, 2016). Poor performance at work or school, for example, can lead to academic failure despite putting in a lot of effort. No matter what people do, no matter how hard they work; nothing will make any difference. "Failure" relates to the concept of self-efficacy, that is, one's belief in one's ability to achieve a goal. In clinical and psychological disorders, the learned inability to express melancholia is associated with a lack of or perceived control over the situation (Seligman, 1975).

"Learned Helplessness" is defined by the person's immune system (Seligman and Garber 1980) and is a psychological condition in which a person feels that he has no control over the situation and therefore seeks help. However, such perceived learning disabilities are a personal phenomenon and do not happen to everyone. "Learned Helplessness" is a behaviour that occurs when students encounter problems beyond their control. This is thought to be primarily because people are aware of their own weaknesses and do not try to escape or avoid attacks, even when these options are clearly presented. It is said that students become less productive after exhibiting this behaviour (Carlson, 2010 & Nolen, 2014).

### **Effects of Learned Helplessness**

The effects of such "Learned Helplessness" have been seen in many animal species, but the effects can also be seen in humans. Consider a commonly used example – a child who fails math tests and homework will soon begin to feel that nothing he does will affect his math performance. Later, when they encounter any math-related task, he will feel hopeless and fail the task. "Learned Helplessness" is also linked to many psychological disorders (Maier & Seligman, 2016), such as, depression, anxiety, phobias, shyness and loneliness. These can cause depression resulting from academic failure (Vollmayr & Gass, 2013).

The cause of learned helplessness is usually stress or trauma. People may feel like they have little control over the situation. Because of the lack of control, people will feel helpless and will have no motivation to take action. Common causes of lack of education include abuse, child neglect, hardship, domestic violence, natural disasters and Injury etc. Overparenting can also lead to academically disadvantaged children. When children are not allowed to try things independently, they will develop a lack of self-organization. Instead of trying, they believe that they



cannot do it without effort (Erik Erikson, 1958 & 1963).

The three elements of successful learning are situational, cognitive and behavioural. Contingency refers to the belief that there is a relationship between events and behaviour, cognition refers to how people think about these relationships, and attitude refers to observing the relationship between actions and events (Johnson & Lambert, 2011).

### **Learned Helplessness among Children**

Learned helplessness often occurs during childhood, and caregivers who are insecure or inactive may contribute to these feelings (Nuvvula, 2016). This ineffective learning can occur throughout life, starting from an early age. When children need help but no one is available there, they may feel that nothing they do can change their situation. Experiences that lead to negative emotions and despair can make you feel like an adult that you can't change your problems. Some symptoms of learned helplessness in children are – not asking for help, frustration, abandonment, lack of effort, less selfish, weak, unmotivated and procrastination (Butkowsky & Willows, 1980).

It is said that Learned helplessness can also lead to anxiety, depression, or both. When children feel like they have no control over past events in their lives, they expect future events to also seem out of control. Many children believe they shouldn't bother trying because they believe nothing, they do will change the outcome of what happens (Hammack et al., 2012). Learning difficulty can also lead to learned helplessness. A child who works hard to get good grades but still fails, may feel like he/she has no control over his/her grades or performance. Since nothing they do makes a difference, they stop trying and their grades get worse. These problems can affect other aspects of the child's life. Their poor performance in school may cause them to think that everything they do is right or beneficial, and thus they may be discouraged from trying in other areas of their lives (Fincham et al., 1989).

### **The Syndrome of Learned Helplessness:**

Keith Joseph McKean also pointed out that unaided learning depends on three factors: (a) Internal criticism (self) – people do not believe in their individual abilities and feel there is something wrong with it, that is, the “It's Mine” syndrome; (b) Global change (general) – people

believe the problem affects other areas of their lives, i.e. the “It affects everything I do” syndrome; (c) Complete security (long term) – people believe the problem will happen, “it's going to take forever” syndrome.

Here are some symptoms of learned helplessness:

- Low Self-Esteem – Due to the inability to learn, people feel bad about themselves and do not believe they can complete even the smallest tasks.
- Frustration – Because they feel like everything is outside of their control, people dealing with learned helplessness have very low frustration tolerance. They get easily overwhelmed or flustered when working on projects or dealing with people.
- Passivity – Having the attitude of “bad things only happen to me” keeps one away from putting all the effort into changing things. People with this view will not make much effort to avoid problems or increase their success.
- Lack of effort – Learned helplessness can lead to procrastination and avoidance of decision making. Most people don't try to complete a project or task, thinking that even if they tried, nothing would happen (or nothing good would come of it).
- Giving up – Even if they start doing something, they stop very quickly. Learned helplessness can be difficult later on, making even the smallest bumps in the road seem overwhelming.

Learned helplessness is not included in the DSM, so technically it is not a mental illness. There is no way to diagnose people with this disease. Instead, the learned helplessness can be viewed as an illusion like any other emotion or conflict. This is an emotional problem that can lead to bad behaviour. Although not an isolated problem, learned helplessness can cause or cause other mental illnesses. It is often associated with anxiety, depression, phobias and loneliness. Some symptoms of learned helplessness, such as low motivation, lack of control, and low self-esteem, overlap with depression and anxiety.

### **Characteristics of Learned Helplessness**

Learned helplessness is worth mentioning because if left unchecked, it can cause serious problems in daily life. Some of the consequences of learned helplessness include

– low self-esteem and adult entitled dependence (AED); mental health disorders, like, anxiety, depression, and post-traumatic stress disorder; trouble in managing and changing behaviours, including, addiction and substance abuse, inability to obtain a desired outcomes, like changing careers or leaving a relationship, difficulty with follow-through, dissatisfaction in life and hopelessness; motivational impairment unable to initiate voluntary behaviour, intellectual impairment incapable of benefiting from future experience, even if they jump; don't learn; emotional trauma like negative affect.

## Learned Optimism

Optimism means believing that good things will happen and that an individual can take steps to help make good things happen. Being optimistic about life can help one approach problems with an open mind, improve mood, and boost subjective well-being. While some people seem to come by optimism quite naturally, it's also something one can cultivate and nurture.

Here Seligman mentions that Learned Optimism has many benefits – optimists are productive and healthy, on the other hand, pessimists are more likely to give up when faced with or under pressure. By challenging negative self-talk and replacing negative thoughts with more positive ones, people can learn how to be more positive. Happiness can improve thinking, but it can also change life. There is evidence that cultivating a positive attitude can improve physical health, reduce stress, increase motivation, improve mental health, and even help live longer.

“Learned Optimism” has been defined by Martin Seligman and published in his book *Learned Optimism* in 1990. Seligman says that it is as good as one can control. He came to understand this through his study of learned helplessness, which refers to a situation that is uncontrollable. He finds that some people criticize themselves for failing, while others criticize the experiment for failing. Seligman turned his attention to finding out what makes some people depressed – the answer is hope. Using what he learned about human failure in the laboratory, he turned his attention to making people better. The results of these experiments led to the subject of the “Learned Optimism” study. Seligman says that learning to be optimistic is possible and that individual can change attitudes and behaviours by identifying and challenging the negative self-talk. The aim of such positive

psychology is to create something positive by focusing on correcting negative situations in life, thus encouraging change in thought (Seligman & Csikszentmihalyi, 2000). It is different from learned helplessness – the phenomenon in which people believe that they cannot change their situation after repeatedly experiencing stress (Abramson, Seligman & Teasdale, 1978; Seligman & Garber, 1980; Maier & Seligman, 2016), Seligman focuses much of his work on negative emotions, wonders why some people don't feel helpless even when they're ready. His thinking changed and he began to understand that people could be more optimistic (Peterson, 2000).

## Benefits of Learned Optimism

There are a good number of benefits to becoming a more optimistic person. Some of the many advantages of optimism that researchers have discovered include:

*Better Health Benefits* – Optimistic people feel better physically. There is evidence that hope plays an important role in health outcomes such as heart disease, cancer, physical illness, and overall mortality (Scheier and Carver, 2018). Researchers also found that people with high expectations may be related to their health behaviours. For example, when dealing with health issues, optimists will understand the situation and take steps to reduce risk and protect health. On the other hand, pessimists are more likely to exhibit health-damaging behaviours (Carver, Scheier & Segerstrom, 2010).

*Better Mental Health* – Optimists report feeling happier than pessimists (Kleiman, Chiara, Liu, Jager-Hyman, Choi & Alloy, 2017). As with physical health, optimistic people are more likely to participate in activities that promote mental health. They do not engage in negative behaviour when faced with stress or depression and rely solely on the healthcare system to stay healthy and strong. In one study, positive attitude control was associated with reduced negative emotions, anxiety, and alcohol consumption (Öcal, Demirtaş, Atalay et al., 2022).

*Reduction of Risk of Depression* – In one study, children at risk for depression were given an education that taught them good academic skills. The findings showed that children with these risk factors were more likely to show symptoms of mild to severe depression more than two years later. However, people who receive hope training are

only half as likely to experience this type of depression (Reivich, Gillham, Chaplin and Seligman, 2013).

*Higher Motivation* – Being kind can help one stay motivated as one pursues the goals. Optimists have a desire to grow when faced with problems in life; they are willing to learn, change and grow even when they encounter problems. Pessimists, on the other hand, have more stable views; they are more likely to give up when faced with problems (Rygula, Golebiowska, Kregiel, Kubik & Popik, 2015).

*Lower Stress Levels* – People not only need less stress, but they can also cope with it. They tend to be stronger and recover from shocks faster; instead of getting depressed and discouraged by negative situations, they focus on making positive changes to improve their lives (Carver & Scheier, 2014).

*Longer Life* – Studies show that optimistic people live longer than pessimists. One study found that happy people lived 11% to 15% longer than negative people. Part of this is that conservatives tend to gravitate towards healthy behaviours, but researchers have found that this increase in life is not independent of behaviours such as health, wellness, depression, relationships, depression and health (Lee, James, Zevon et al., 2019). Other studies have shown that hope is associated with reduced mortality from many diseases, including heart disease, stroke, and cancer (Kim, Hagan, Grodstein, DeMeo, De Vivo and Kubzansky, 2017).

## Optimism vs. Pessimism

Pessimists tend to escape or avoid when faced with stress. In other words, they simply try to avoid the stress or emotion rather than using effective coping techniques to solve or manage the problem. Pessimists may also give up trying because they do not believe in the future. Happy people, on the other hand, tend to look for things that will increase their happiness and reduce stress in their lives. They are often optimistic about the future and willing to take steps to make good things happen (Hecht, 2013).

Optimists and pessimists often differ in their explanations or how they interpret events in their lives. The main differences in these explanatory models focus mainly on the following points:

- a) Permanence – Optimists want to see difficult times as temporary; that’s why they seem to bounce back better after failure or setbacks. Pessimists tend to view

negative situations as fixed and unchangeable; that’s why they often give up when things get hard.

- b) Personalization – When things go wrong, happy people will blame the outside or the situation. Pessimists, on the other hand, are more likely to blame themselves for negative situations in life. On the other hand, optimists see good things as the result of their own efforts, while pessimists attribute good results to external influences.
- c) Universalism – When optimists encounter failure in one area, they do not let it affect their belief in their abilities in other areas. But pessimists believe the decline is greater - in other words, they believe that if they fail in one subject, they will be unsuccessful in every sphere of life.

## Development of Learned Optimism

Once it is clear that optimism is useful, the question arises whether people can learn to be more positive. Can even the most pessimistic people adjust their worldview? While some aspects of behaviour may seem fixed, there is evidence that one can learn how to do it better.

Nature vs. Nurture – Researchers have shown that the level of hope is in part genetic, as well as influenced by childhood experiences such as parental warmth and financial security (Carver, Scheier & Segerstrom, 2010). But Seligman’s research shows that learning skills can help one becoming a happier person. As strange as it may seem at first, anyone can learn these skills.

Optimal Time to Develop Optimism – Seligman’s research suggests that the best possible time of teaching to develop the optimism skills to think intelligently about their own thoughts may be beneficial is the childhood, but not before aging begins. Teaching these skills at this critical time may be key to helping children cope with many mental illnesses, including depression.

## Research on the Psychology of Learned Optimism

Learned optimism is a concept that emerged out of the relatively young branch of psychology known as positive psychology. Learned optimism was introduced by psychologist Martin Seligman, who is considered the founder of the positive psychology movement. Learning

to be optimistic is an important way to help people regain their mental health and live better lives. Seligman himself said that his work was first associated with bad feelings. As a psychologist, he loves finding problems and how to solve them. It wasn't until a friend told him that his work was really about hope that he really started focusing on the good and making it better.

### **Power of Positive Thinking**

Seligman's early work focused on what was called learned helplessness; this is when it is simply stopped when one believes that nothing will be done to make any difference. Expression style plays a role in this learned helplessness. How people interpret them can influence whether people have these negative emotions, whether they believe they come from outside or inside.

### **New Direction in Psychology**

As a result of this change, Seligman wrote a book focusing on the psychology of learned optimism. His work contributed to positive psychology. Seligman was later elected president of the American Psychological Association by the largest vote in APA history. This year's theme focuses on the theme of positive psychology. Seligman believes that psychology is only half completed; while there is a lot of research and practice in the field of mental health, trauma and psychology, the other side, which focuses on how to be happy and live a good life, is still in its infancy. Seligman also believes that if people learn to do good, they can live better, happier lives.

### **Positive Psychology**

The positive psychology discipline has been in existence since 2000 (Seligman & Csikszentmihalyi, 2000). However, the summary states that this has been a subject of religion since at least the 1980s (Ryff, 1989) and has existed in religion and philosophy for thousands of years (Christopher & Hickinbottom, 2008).

The origin of the term "positive psychology" dates back to at least 1954, when Abraham Maslow's book "Motivation and Personality" was published; a chapter at the end of his psychology book called "Towards a Positive Psychology" (Maslow, 1954). In 1970, he removed this statement from the text, stating that "good psychology, though not very

broad, at least exists today" (Maslow, 1970). There is evidence that since the 1950s psychologists have become interested in health promotion rather than simply treating mental illness (Secker, 1998). Since the early days of psychology, the field has used the "pathology model" to examine human experience and examine and describe human dysfunctions.

Positive psychology has been defined in many ways and with many words, but the most widely accepted definition of the field is as follows: "Positive psychology is the scientific study of what makes life most worth living" (Peterson, 2008). Positive psychology describes people's thoughts and feelings. It is a method for examining people and their behaviour – focusing on strengths rather than weaknesses, increasing the good in life rather than correcting the bad, and enabling ordinary people to achieve the "good" in their lives rather than striving to achieve "normal" (Peterson, 2008).

This field was created out of people's desire to live meaningful and fulfilling lives, to be their best selves, and to enhance their experiences of love, work, and activity. "Positive Psychology" examines the conditions that help individuals, groups, and organizations work effectively (Gable & Haidt, 2005). It is committed to good knowledge, good behaviour, and good organization to improve the quality of life (Jenkinson, 2020). Positive psychology began to emerge as a new field of psychology in 1998, when Martin Seligman chose positive thinking as the theme of his presidency of the American Psychological Association (Ben-Shachar, David, 2004; and Reham, 2015). This is the antidote to the previous focus on mental illness, bad behaviour, and negative thinking. It emerged from the humanist movement of Abraham Maslow, Rollo May, and Carl Rogers, who advocated the importance of happiness, health, and purpose (Reham, 2015).

Positive psychology focuses on the positive events and influences in life, including – Positive experiences (like happiness, joy, inspiration, and love); Positive states and traits (like gratitude, resilience, and compassion); and Positive institutions (applying positive principles within entire organizations and institutions). Positive psychology as a field spends a lot of time thinking about things like success, optimism, life satisfaction, happiness, joy, gratitude, empathy (and self-compassion), self-esteem and confidence, hope, and growth. He found what he was



looking for in the empowerment and learning process, and these findings formed the basis for its widespread use for children and soldiers alike.

Seligman emphasized that psychology focuses on the negative; Too much emphasis is placed on mental illness, abnormality, injury, pain and suffering, not on happiness, health, fashion, power and prosperity little glimpse.

Psychology is often used as “success”, “good life” or “happiness” in English translation (Nyabul & Situma, 2014). Positive psychologists, who examine the conditions and processes that lead to success, happiness, and well-being (Gable and Haidt, 2005), often use change.

Good psychologists talk about many things that can lead to happiness and well-being; for example: relationships and general discussions with spouse, family, friends and colleagues; participation in organizations or community organizations; physical exercise; and good practices (Nguyen et al., 2019). Spirituality and religion are other paths to health (Day, 2010). Happiness will increase when money is earned, but happiness will decrease or decrease when there is no added benefit or distraction (Seligman et al., 2005).

When Martin Seligman was elected president of the American Psychological Association in 1998, he took advantage of the opportunity in this important position and changed the direction of the field. It proposes a new subfield of psychology that focuses on what gives life, not what consumes it. The basic text of the new study of positive psychology was published in 2000 by Seligman and flow’s “founder” Mihaly Csikszentmihalyi. Since 2000, Martin Seligman’s call to focus on quality of life has been echoed by thousands of scientists around the world, leading to thousands of studies on quality of life and laying the foundation for good behaviour going forward. to apply principles to education, training, and relationships, office and other areas of life. Through detailed questions, Seligman found that the most contented and happiest people were those who discovered and used their unique combination of “signature strengths,” such as humanity, temperance and persistence. This view of happiness combines the philosophies of Confucius, Mencius, and Aristotle with the motivational theories of modern philosophy. Seligman concluded that there are three types of happiness that can be cultivated – a happy life, a good life, and a meaningful life.

A happy life can be achieved if one learns to enjoy and appreciate pleasures such as friendship and the natural environment and bodily needs. At this stage one can live happily or live a good life, which is achieved by discovering the virtues and special strengths and using ideas to improve lives. According to modern self-esteem theory, life will be truly satisfying if one sees oneself as valuable. But one of the best ways to discover this benefit is to support the special energy that contributes to the health of the friends. The final stage, therefore, is “Meaningful Life” where one is happy to use the unique powers to achieve a purpose higher than oneself.

### **Benefits of Positive Psychology**

It is not possible to list all the benefits of positive psychology, but some of the best and most effective benefits for mental health are given herewith. Generally speaking, the biggest benefit of positive psychology is that it shows the power to change thoughts. This is the goal of many strategies, exercises, and even entire programmes based on positive psychology, because a small change in one’s thinking leads to a willingness to make positive changes in health and quality of life. Infusing more hope and gratitude into the life is a simple action that can give one a positive outlook on life. Yes, no reputable psychologist will tell to think, act and focus only on the good in life – balance is very important. Positive psychology has not been designed to replace normal psychology, but to supplement it with the strong negative influence of negative psychology in a few cases many years ago.

### **Studies and Researches on Positive Psychology**

Positive psychology teaches how to use the power of positivity to change thoughts and make it possible to be happy in many of the daily activities. For example, each of these discoveries provides specific ideas for improving the quality of life:

- (a) People exaggerate the effect of money on happiness. There are some benefits, but not as many as is thought, so focusing on finding less money will make you happier (Aknin, Norton & Dunn, 2009).
- (b) Spending money on experiences can increase happiness more than spending on material goods (Howell & Hill, 2009).

- (c) Gratitude is an important factor in happiness in life, which means one needs to be more generous (Seligman, Steen, Park & Peterson, 2005).
- (d) Oxytocin can promote greater trust, empathy, and morality in people, which means hugging or other means that physical affection can improve overall well-being (Barraza & Zak, 2009).
- (e) People who deliberately create positive emotions to match the external emotions they want to express (for example, when thinking about work) can benefit from better emotion. In other words, “putting a happy face” will not necessarily make one happier, but a little effort will make happier (Scott & Barnes, 2011).
- (f) Happiness is contagious – individuals who have happy friends and lovers will have a happy future (Fowler & Christakis, 2008).
- (g) People who are kind to others are not only healthier but also benefit from their friends (Layous, Nelson, Oberle, Schonert-Reichl & Lyubomirsky, 2012).
- (h) Giving time to a cause one believes in one can increase happiness and life satisfaction and reduce symptoms of depression (Jenkinson et al., 2013).
- (i) Spending money on others makes the giver happier (Dunn, Aknin & Norton, 2008).

### **Psychological Capital (PsyCap)**

The concept of psychological capital was first developed in the context of organization and its four elements that connect job and life satisfaction are Hope, Efficacy, Resilience, and Optimism (HERO). Although each element has its own characteristics and effects, the concept of PsyCap is very much equal to its parts. PsyCap, based on enthusiasm and positive thinking, is an important building block of happiness and success.

“Psychological Capital” is the combination of four health states that enhance health and performance – optimism, effectiveness, resilience, and resilience. Four states’ total revenues exceed their individual revenues. In the workplace, employees can develop psychological resources to improve individual performance, while employers can develop psychological resources to improve the work of the entire team and the employee. (Luthans & Broad, 2022). Psychological capital does not focus on

poor performance or mental health. Its mission is to help people live productive and productive lives and to help organizations create an environment where employees and organizations can thrive.

“Psychological Capital” (PsyCap) is a state of positive psychological development of a person and is characterized by – (a) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (b) making a positive attribution (optimism) about succeeding now and in the future; (c) persevering towards goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (d) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success (Luthans, Youssef & Avolio, 2007).

Human resources play an important role in the success of almost every business and therefore need to be managed effectively and efficiently. The concept of psychological capital comes from “postmodern positive psychology” (Page & Donohue, 2004), which includes the positive and negative aspects of human behaviour. This concept was first discussed by Martin Seligman in 1999 and later proposed by Luthans and colleagues in the United States in 2004 (Erkme & Esen, 2012).

“Positive psychology began many years ago when psychologist Martin Seligman challenged the field to move away from focusing on people’s flaws and failures to focus on people’s truths and goodness” (Luthans et al., 2004). The concept of psychological capital has been evaluated by different authors and sources. Psychological capital also refers to a person’s psychology and its four main factors (self-efficacy, optimism, hope and perseverance) (Goody et al., 2009). Çetin et al., (2011) pointed out that this word does not have fixed features, but features that change depends on the situation. In theory-based research, psychological capital is defined as “a higher structure consisting of four different psychological dimensions” (Luthans et al., 2007). Psychological capital can be said to be, in Hughes’ words, a combination of four factors that can be “effectively measured, developed, and managed” (p. 47) to improve repair efforts (Hughes, 2008).

### **Psychological Capital (PsyCap): Definition and Measurement**

Psychological capital is defined as “an individual’s positive



psychological state of development” characterized by high levels of HERO (Fred Luthans et al., 2007). The concept of PsyCap is also related to recent discoveries in the field of neuroplasticity. Because our brains are plastic, PsyCap can be developed and strengthened. Additionally, PsyCap can be implemented and measured.

Many scales have been developed to measure PsyCap. The first scale developed by Luthans, Youssef, and Avolio (2007) in an organizational context was the Psychological Capital Questionnaire-24 (PCQ-24).

The concept of psychological capital (PsyCap) is designed for organizations. Pioneer Fred Luthans said organizational development should focus on psychological development rather than academic development. He argued that human resources can be more effective because it is more difficult for competitors to imitate them than physical, structural and financial resources.

Luthans believes that workers have two types of knowledge – explicit knowledge and tacit knowledge. Explicit knowledge includes skills, abilities, and competencies derived from education and experience. Tacit knowledge is created over time through social integration. Luthans argued that knowledge provides a long-term competitive advantage because it is unique, collective, interrelated, and immutable relative to competitors. According to this strategy, Luthans encouraged companies to invest in human capital management, which includes knowledge development, rather than hiring temporary workers (Fred Luthans & Youssef, 2004).

Within the framework of Positive Organizational Behaviour (POB), “study and application of positively oriented human resource strengths and psychological capacities”.

According to many studies, a high level of psychological capital has a positive effect on employee performance and job satisfaction, especially in business services (Abbas, Raja, Darr & Bouckenoghe, 2012; Fred Luthans, Avolio, Avey & Norman, 2007; Fred Luthans & Youssef, 2007; Youssef & Luthans, 2007). Furthermore, due to the strong relationship between job and life satisfaction, it can be argued that hard-working employees generally lead more satisfying lives (Judge & Watanabe, 1993). High PsyCap levels have been shown to have positive effects on health and well-being, such as reducing BMI and cholesterol levels and increasing social satisfaction (Lorenz, Beer,

Pütz & Heinitz, 2016).

PsyCap is hinged upon Hope. Hope and optimism are both positive attitudes. is associated with physical and mental health (Du, Bernardo & Yeung, 2015). According to Synder et al., (1991), optimism refers to the belief that one can find a way to achieve the goals one wants and being motivated to use this way. Therefore, hope is a cognitive process that encourages people to find strength (goal-determination) and strength (planning to achieve the goal), leading to positive thinking (hope to achieve desired goals).

Develop Hope can be developed by enriching the following five components have found to be successful in developing hope:

*Goal setting and perceived ability (pathway thoughts)* – The concept of hope is based on the belief that a person wants to achieve a goal. In general, the emphasis is on the direction of the goal (moving towards something) rather than the avoidance goal (moving away from something). Ideally in a work environment, goals should be specific, measurable, achievable, relevant and time-bound (Fred Luthans & Youssef, 2004).

*Motivation (Agent Thinking)* – Autonomy and meaning are seen as important factors in creating motivation.

*Development of Efficacy* - Bandura (1997) defines self-efficacy as “people’s beliefs about their capabilities to produce effects”. Whether one has the confidence to take action and strive for success in a difficult task will determine how he/she thinks, feels, and cares. Self-efficacy has two main components – (a) Outcome expectancy (examination of what needs to be done), and (b) Efficacy expectancy (examination of our own capability to do what needs to be done). Bandura (1994) found that the level of self-efficacy is affected by the following processes – (a) Cognitive (thoughts shape reality), (b) Motivational (expected outcomes based on the beliefs shape motivation), (c) Affective (perceived coping self-efficacy regulates avoidance behaviour), (d) Selection (one only exposes oneself to situations he/she believe can master)

*Development of Resilience:* Resilience is the ability to survive adversity and emerge stronger after overcoming negative situations (Luthans, 2002; Reivich & Shatté, 2002). Every one faces challenges and rejection in life. But what makes one strive and achieve success is not how many times one is rejected, but how many times he/she

comes back and try again. At its core, resilience is about learning to fail. The greatest victory is not to fall, but to stand up after every fall.

## **Sustainable Development**

According to the World Health Organization (WHO), sustainable development is a broad term used to describe policies, activities and investments that provide benefits today without affecting the environment, health and personal well-being in the future. These laws are often called green laws because they focus on limiting the impact of development on the environment. But the benefits of sustainability are also seen in all aspects of human health and well-being, including reducing pollution and environmental diseases, improving health and reducing stress. In reducing stress and improving health, both physical as well as mental, the application of positive psychology by developing psychological capital is very crucial.

## **Global Action Plan for Healthy Lives and Well-being for All (SDG3 GAP)**

The Global Goals for Health and Wellness for All (SDG3 GAP) were launched in 2019 and bring together 13 multilateral health, development and humanitarian agencies. The mission is to help countries achieve the health-related Sustainable Development Goals (SDGs) by committing to promoting joint work of organizations, collaboration and greater mutual support. The state owns and directs the country's plans and strategies.

Sustainable living means understanding how our lifestyle choices affect the world around us and trying to make life better and easier. Applying the "people's perspective" to sustainable development is a new, current and wonderful opportunity. Sustainable lifestyles and lifestyles are included in the Development Goals for the first time. The United Nations Environment Programme is at the forefront of research on sustainable living and how it can be useful in development decision-making.

Many people stand up without intending to harm or help the environment. People get up, live and strive for their desires. While human resources are booming in many parts of the world, many people elsewhere are struggling to meet their basic needs. Our future now depends on our behaviour and the choices we make to live, work and play

as global consumers – how we manage our families, what we eat, our travels, how we relax, what we buy and how we take care of ourselves. family. planet.

People do not change their behaviour as they should. They do not react to information and statistics or to future negative events. People pursue their needs and desires. They make decisions based on additional criteria such as cost, availability, performance, health, or preference. Sustainability is not a definition. Even those who want to live a sustainable life often lack information and access to affordable and desirable products and services. This clearly shows that governments and businesses (as well as consumers!), as well as individuals, have a responsibility to provide more information, encourage positive behaviour change and encourage the introduction and creation of new business models that lead to healthy choices.

UNEP is a long-term supporter of sustainable livelihoods and livelihoods and currently contributes to Sweden and Japan's One Planet Network initiative for sustainable livelihoods and joint education. The vision is to identify sustainable personal development and integrate sustainable lifestyles throughout society, achieving good health according to the sustainable development goals for people worldwide. To achieve the vision, help and support the people and the organizations that work with people to be healthier. It also includes (predetermined) options and processes offered by the Government and the private sector to meet greater needs. Research organizations and NGOs are developing sustainable lifestyles and predicting the future. Evidence in education, policy and practice should be promoted by bringing together the experts to collect and synthesize data. To promote and disseminate knowledge and reflection on how daily decisions affect the world and the people around us educational institutions play important roles; their activities include formal and non-formal education, as well as the generation of evidence, the provision of climate information and situational solutions, and their delivery through urban planning, competitions and trials. The Government provides direction, framework and future projections to support policy adoption and improve infrastructure; this in turn increases people's motivation and choice to live a sustainable lifestyle.

Cultural influencers, communications and media outlets create messages creatively and inspiringly through new platforms. For example, media organizations can create

messages and reports from influencers or documentaries to raise public awareness. Climate activists and political activists are the new “politics” that must be acknowledged.

## Conclusion: PsyCap and Sustainable Development

Psychological capital (commonly known as PsyCap) is often seen to have an impact on employees’ attitudes and behaviours, which in turn has a direct impact on organizational development (Newman et al., 2014). PsyCap identifies employees’ talents and encourages them without being affected by negative aspects. Therefore, it enables people to encourage innovation and creativity, thereby improving the performance of the organization. A clear understanding of psychological capital will help to improve personal and organizational performance. Additionally, good mental health programmes help motivate and support work that puts the company ahead of the competition. This will help to create a position as dedicated people must be instrumental in achieving the organization’s goals. Avey et al., (2010) state that the four constructs of PsyCap directly influence employees’ attitudes and thoughts and influence their actions or behaviours. A healthy workplace makes employees happy and motivates them to achieve more. In addition, mental capital is directly related to the health status of a person, which reflects his/her performance. In other words, mental capital focuses on personal and professional development. Research shows that occupational health is directly related to personal health. Therefore, people prefer to work with organizations that have a good working environment, which allows the company to retain good employees.

An employee’s psychological state provides confidence in taking risks, often referred to as self-efficacy. It also allows people to rediscover ways to achieve their goals and increases resilience in difficult situations. These cases show that mental illness is associated with the performance of certain tasks. Peterson et al., (2011) stated that psychological capital results from the level of motivation, ability to develop skills and achieve goals.

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## FEATURE ARTICLE

## Teaching-Learning Evaluation of MHRD-NPTEL for Sustainable Education Towards Greener Future

Haripad Kumar Mahato\*, Usha Dubey\*\*, Akhilesh Kumar Gupta\*\*\*

### Abstract

*Teaching-Learning evaluation of MHRD-NPTEL as a process is emerging as one of the most effective ways for ensuring sustainable education towards greener future. In the pursuit of fostering sustainable education for a greener future, this study delves into the Teaching-Learning Evaluation of the Ministry of Human Resource Development-National Programme on Technology Enhanced Learning (MHRD-NPTEL). The article presents a comprehensive analysis of NPTEL's effectiveness in imparting knowledge and skills conducive to sustainability across various disciplines. Drawing upon quantitative and qualitative data, including surveys, interviews, and academic performance metrics, this research assesses the program's impact on students' understanding and application of sustainable principles.*

*The evaluation encompasses the pedagogical approaches employed within NPTEL courses, the integration of sustainability themes, and the alignment with broader educational objectives. Additionally, the study investigates the perceived challenges and opportunities encountered by both learners and instructors in engaging with sustainability-focused content through online platforms. Through a critical examination of course materials, instructional methods, and learning outcomes, the research offers insights into the strengths and limitations of NPTEL in addressing the multifaceted dimensions of sustainability education.*

*Furthermore, the article discusses implications for enhancing the effectiveness of NPTEL in promoting sustainable education, including recommendations for curriculum development, pedagogical strategies, and technological innovations. By elucidating the role of digital*

*learning platforms in advancing sustainability literacy and fostering environmental consciousness among learners, this study contributes to the ongoing discourse on leveraging technology for educational transformation towards a greener and more sustainable future*

Keywords: Teaching-learning evaluation, E-learning, MOOCs, MHRD-NPTEL, statistical information, courses, sustainable education, awareness programme

### Introduction

In today's rapidly evolving world, the pursuit of sustainable education has emerged as a critical imperative. As the global community grapples with pressing environmental challenges, the role of education in fostering a greener future has become increasingly prominent. Recognizing this urgency, educational initiatives such as the Ministry of Human Resource Development's National Programme on Technology Enhanced Learning (MHRD-NPTEL) have been instrumental in bridging the gap between traditional academic paradigms and contemporary sustainability imperatives.

The Teaching-Learning Evaluation of MHRD-NPTEL for Sustainable Education Towards a Greener Future aims to explore and assess the efficacy of this pioneering educational program in fostering sustainable practices and attitudes among learners. This paper delves into the rationale behind the integration of sustainable education within the NPTEL framework and evaluates its impact on learners' understanding, attitudes, and actions concerning environmental sustainability.

In recent years, the concept of sustainable development has gained considerable traction across various sectors,

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including education. Sustainability encompasses not only environmental concerns but also social equity and economic prosperity, making it a multifaceted and interdisciplinary field. Within the realm of education, sustainable practices involve not only instilling knowledge about environmental issues but also cultivating a mindset of responsibility, critical thinking, and innovation to address these challenges effectively. Against this backdrop, the MHRD-NPTEL initiative represents a significant endeavor to embed sustainability principles within the fabric of education. By leveraging technology-enhanced learning methodologies, NPTEL has extended the reach of quality education to learners across diverse geographical and socio-economic backgrounds. Through a curate repository of online courses spanning various disciplines, NPTEL aims to democratize access to education while fostering a culture of continuous learning and skill development.

However, while the proliferation of educational resources is undoubtedly valuable, the true measure of success lies in their impact on learners' knowledge acquisition and behavioral change. Thus, this paper seeks to evaluate the effectiveness of NPTEL courses in nurturing a deeper understanding of sustainability concepts and motivating learners to adopt eco-friendly practices in their personal and professional lives.

By conducting a comprehensive assessment of NPTEL's teaching-learning strategies, course content, and learner outcomes, this study endeavors to shed light on the program's strengths, challenges, and areas for improvement in promoting sustainable education. Ultimately, the findings of this evaluation endeavor to inform policymakers, educators, and stakeholders about the potential of online platforms like NPTEL in advancing sustainability goals and shaping a greener future through education.

National Education Policy (NEP)-2020 emphasized the use of Massive Open Online Courses (MOOCs) for higher education in terms of credit transfer. These MOOCs emerged from a resource crunch and are able to serve quality education to each economic group irrespective of income (Pratim Das, 2023; Vijayashakaranayaka, 2020). Today we live in a digital age and e-learning systems are growing and also adopted by leading institutes e.g., IITs and IIMs. The Ministry of Human Resource Development (MHRD), Government of India, has continuously encouraged MOOC-based online quality education (Bordoloi et al.,

2020). The National Programme on Technology Enhanced Learning (NPTEL) is the first authentic and systematic Indian MOOC platform started in 2003, followed by mooKIT in 2012, IITBX in 2014, and Swayam Portal in 2017 (Singh & Kakkar, 2023; Chauhan, (2017).

National Programme on Technology Enhanced Learning (NPTEL) is a collaborative venture of the IITs (Indian Institute of Technology) and IISc (Indian Institute of Science) which was launched in 2003 (Singh & Kakkar, 2023; Sivakumaren & Thangavel, 2019) and is funded by the Ministry of Education (MoE), Government of India. It was an outstanding initiative to serve quality education across the country including remote areas. NPTEL offers close to 10000+ courses in about 25 disciplines. It is considered the largest online repository in the world in different disciplines including Aerospace Engineering, Biotechnology, Chemical Engineering, Chemistry and Biochemistry, Civil Engineering, Computer Science and Engineering, Engineering Design, Electrical Engineering, Humanities and Social Sciences, Management, Mathematics, Mechanical Engineering, Metallurgy and Material Science, Ocean Engineering, Physics, Textile Engineering, Electronics & Communication Engineering, Mining Engineering, Architecture, Agriculture, Law and Economics.

NPTEL online learning system seems as a promising approach for Sustainable education with special reference to teaching and learning practices towards a Greener Future. Presently, the NPTEL YouTube channel is the most subscribed educational channel with over 40+ lakhs of subscribers. It has more than 56000 hours of video peer-reviewed educational content in the world in a variety of regional Indian languages. The diversity of the NPTEL discipline makes it suitable for sustainable and greener educational practices in India. Recently, students can transfer NPTEL credit to their degree courses as per University Grant Commission (UGC) guidelines.

Hence, the present course of investigation was carried out to evaluate of secondary dataset of MHRD-NPTEL for sustainable education towards a greener future.

## 1. Research Methodology

Research methodology refers to the systematic procedures, techniques, and principles employed by researchers to investigate and address a particular research question

or problem. It encompasses the overall approach and strategy guiding the entire research process, including data collection, analysis, interpretation, and dissemination of findings. Research methodology delineates the framework within which research is conducted, ensuring rigor, reliability, and validity in the pursuit of knowledge and understanding within various fields of study.

In this paper the secondary research (or desk research) method was used for the study. The present research work was done to explore the secondary dataset of MHRD-NPTEL portals related to the courses to examine their contribution towards sustainable and greener education with special reference to Teaching and Learning practices. This research work was based on the secondary data sources. For this, the NPTEL statistics were assessed.

### Data Source

The secondary data was collected from the NPTEL website. Sources of Dataset are mentioned in Table 1. The statistical dataset was tabulated and evaluated to draw a significant conclusion.

**Table 1: Sources of Dataset**

S.No.	Data Source	Link
1.	NPTEL Portal	<a href="http://nptel.ac.in">http://nptel.ac.in</a>
2.	NOC Portal of NPTEL	<a href="http://nptel.ac.in/noc">http://nptel.ac.in/noc</a>
3.	Local Chapter Portal	<a href="http://nptel.ac.in/LocalChapter/">http://nptel.ac.in/LocalChapter/</a>
4.	ICT Text Transcription Portal	<a href="http://textofvideo.nptel.ac.in/">http://textofvideo.nptel.ac.in/</a>

### 1. NPTEL Portal

The NPTEL (National Programme on Technology Enhanced Learning) portal is an initiative by the Indian government aimed at enhancing the quality of engineering education in the country. It offers online courses and study materials created by professors from premier Indian institutes such as the Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc). NPTEL provides access to high-quality educational content in engineering, sciences, humanities, and management disciplines, catering to students, faculty, and professionals across India and beyond. With a vast repository of video lectures, assignments, quizzes, and supplementary resources, NPTEL facilitates self-paced learning and skill development, fostering a culture of continuous education and knowledge dissemination.

### 2. NOC Portal of NPTEL

The NOC (National Online Certification) portal of NPTEL is an extension of the NPTEL initiative, offering online certification courses to learners worldwide. Through this platform, participants can enroll in specialized courses across various disciplines, including engineering, sciences, humanities, and management. These courses are designed and conducted by eminent faculty from prestigious Indian institutions such as the Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc). Participants engage in interactive online lectures, assignments, quizzes, and assessments, culminating in a certification upon successful completion. The NOC portal of NPTEL provides learners with opportunities to enhance their skills, acquire new knowledge, and earn recognized certifications, thereby facilitating continuous learning and professional development on a global scale.

### 3. Local Chapter Portal

The Local Chapter Portal is an integral component of NPTEL's outreach strategy, designed to foster collaboration and engagement within educational institutions across India. Through this portal, institutions can register as NPTEL Local Chapters and serve as conduits for disseminating NPTEL's educational resources and initiatives to their students and faculty. Local Chapters gain access to a range of benefits, including support for organizing workshops, seminars, and awareness campaigns, as well as assistance in facilitating proctored examinations for NPTEL certification courses. By establishing Local Chapters, NPTEL aims to strengthen its network and amplify its impact, ensuring wider accessibility and participation in high-quality online learning experiences within local communities and educational institutions nationwide.

### 4. ICT Text Transcription Portal

The ICT Text Transcription Portal is an online platform designed to facilitate the conversion of audio and video content into text format. Utilizing advanced transcription technology, this portal enables users to upload multimedia files, which are then automatically transcribed into written text. This transcription process enhances accessibility by making audio and video content searchable, editable, and available in textual form. The portal is particularly beneficial for individuals with hearing impairments,

researchers, content creators, and organizations seeking to improve the usability and reach of their multimedia resources. Additionally, the ICT Text Transcription Portal supports multiple languages and dialects, catering to diverse linguistic needs and enhancing inclusivity in communication and information dissemination.

## Results and Discussion

The observation revealed that the NPTEL has offered 10650 courses to date under five NPTEL and NOC (NPTEL Online Certification) portals viz., NPTEL Portal, NOC Portal Of NPTEL, Local Chapter Portal, ICT Text Transcription Portal (NPTEL), and ICT Text Transcription Portal (NOC). Among them, a maximum of 4449 courses alone were offered by the Local Chapter Portal and contributed 41.8 % of the total courses (Table 2), and it is graphically represented in Fig. 1.

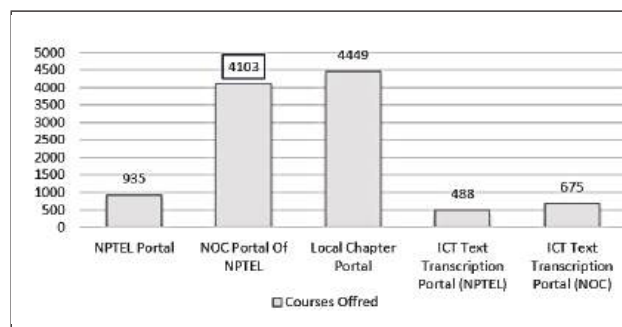
**Table 2: Courses offered via NPTEL Portal and their percentage contribution**

S.No.	NPTEL Portal	Courses Offered	Percentage contribution
1.	NPTEL Portal	935	8.8
2.	NOC Portal Of NPTEL	4103	38.5
3.	Local Chapter Portal	4449	41.8
4.	ICT Text Transcription Portal (NPTEL)	488	4.6
5.	ICT Text Transcription Portal (NOC)	675	6.3
<b>Total courses offered</b>		<b>10650</b>	<b>100</b>

The analysis of course offerings across various portals reveals intriguing insights. The NPTEL Portal, hosting 935 courses, contributes 8.8% to the overall inventory. In stark contrast, the NOC Portal Of NPTEL boasts the largest share, with 4103 courses, constituting a significant 38.5% of the total. Similarly, the Local Chapter Portal stands out, offering 4449 courses, representing a substantial 41.8% share. Despite their seemingly smaller presence, the ICT Text Transcription Portals, both NPTEL and NOC, collectively contribute 10.9% of the total offerings, with 488 and 675 courses respectively. This comprehensive examination underscores the diverse distribution of courses across different portals within the NPTEL framework, with the Local Chapter Portal emerging as a prominent hub for

educational resources

Student registration and certification statistics of NPTEL from Jan 2014 to Dec 2021 which are divided into 16 Semesters are tabulated (Table 3). The offer of courses gradually increased from 1 (Jan-June 2014) to 524 (Jul-Dec 2021) and the enrolled, registered, present and, certified students numbers were increased (Table 3).



**Fig. 1: Courses offered by different NPTEL Portal**

NPTEL offers a diverse range of courses across various disciplines through its different portals. The NPTEL main portal hosts numerous courses covering topics in engineering, sciences, humanities, and management, with a focus on undergraduate and postgraduate level education. The NOC (National Online Certification) portal extends these offerings to provide certification courses accessible to learners worldwide, featuring interactive lectures, assignments, and assessments. Additionally, the Local Chapter Portal serves as a platform for educational institutions to engage with NPTEL initiatives and access resources for organizing workshops and proctored examinations. Together, these portals collectively contribute to NPTEL’s mission of providing high-quality, accessible, and affordable online education to learners across the globe, fostering continuous learning and skill development

The results of the present research work exhibited that a total of 10650 courses have been uploaded and run under the NPTEL including NOC, Local Chapter, ICT Text Transcription (NPTEL), and ICT Text Transcription (NOC) Portal from a variety of leading educational institutes e.g., IIT, IIM, IISER, Central universities, and so forth. that the NPTEL with NPTEL Cloud of Achievements is depicted in Fig. 4.

**Table 3. Student registration and Certification Statistics of NPTEL from Jan 2014 to Dec 2021 Divided into 16 Semesters**

Period	No. of Courses	Enrolled	Registered	Present	Certified	Enrolled but not registered	Registered but not present	Present but not certified
Jan-June 2014	1	53807	1380	1182	546	52427	198	636
Jul-Dec 2014	2	58947	1653	1549	1526	57294	104	23
Jan-June 2015	18	89045	2564	2113	1931	86481	451	182
Jul-Dec 2015	36	160819	7291	6006	3165	153528	1285	2841
Jan-June 2016	64	241691	17292	15292	10252	224399	2000	5040
Jul-Dec 2016	104	401176	31444	26544	19595	369732	4900	6949
Jan-June 2017	130	535223	44099	38405	31117	491124	5694	7288
Jul-Dec 2017	159	1049265	70316	63398	54092	978949	6918	9306
Jan-Apr 2018	226	934182	86954	76126	66141	847228	10828	9985
Jul-Oct 2018	270	1330816	161300	144078	124317	1169516	17222	19761
Jan-Apr 2019	291	1619065	204061	183282	161902	1415004	20779	21380
Jul-Dec 2019	359	1827564	253387	222826	164765	1574177	30561	58061
Jan-June 2020	391	2042505	87086	30614	24350	1955419	56472	6264
Jul-Dec 2020	417	2064105	191653	170043	125747	1872452	21610	44296
Jan-Apr 2021	505	1663929	178687	141824	105073	1485242	36863	36751
Jul-Dec 2021	524	1726213	236628	225530	163098	1489585	11098	62432
	3497	15798352	1575795	1348812	894316	14222557	226983	454496

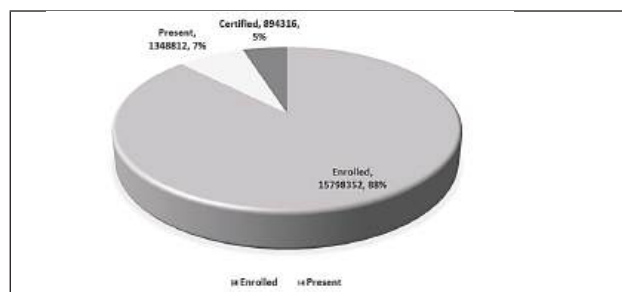
Data Source: <https://archive.nptel.ac.in/resources/statistics/>

The table presents the enrollment, registration, attendance, and certification statistics for courses offered under the MHRD-NPTEL initiative from January 2014 to December 2021. Over this period, a total of 3,497 courses were offered, attracting a significant enrollment of 15,798,352 participants. However, the number of registered participants varied, with 1,575,795 individuals officially registering for courses.

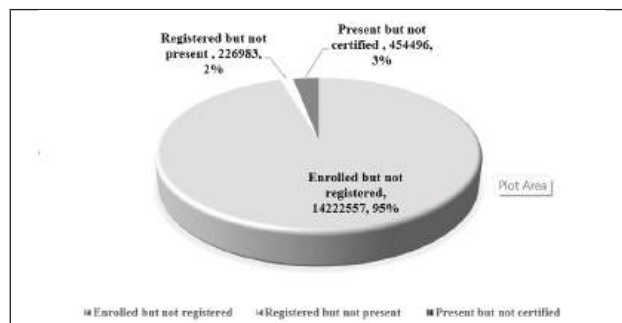
The data also highlights the varying levels of engagement and completion. While a large number of participants enrolled in the courses, the number of individuals who attended classes and ultimately received certification was notably lower. For instance, out of the total enrolled participants, 8,943,316 individuals were present during the courses, and 894,316 participants received certifications, indicating a completion rate of approximately 11.3%.

The results suggest fluctuations in enrollment, registration, attendance, and certification rates over time, indicating potential trends and patterns in participant engagement with the MHRD-NPTEL courses. These findings provide valuable insights for evaluating the effectiveness of the initiative and identifying areas for improvement to enhance

participant retention and successful course completion.



**Fig. 2: Student Enrolled to Certified Statistics of NPTEL from Jan 2014 to Dec 2021**



**Fig 3: Significant gap in Student registration to certification of NPTEL from Jan 2014 to Dec 2021**



## 2. NPTEL Cloud of Achievements

The NPTEL (National Programme on Technology Enhanced Learning) Cloud of Achievements is a virtual space designed to recognize and celebrate the accomplishments of learners who have excelled in various online courses offered by NPTEL. This cloud serves as a testament to the dedication, hard work, and proficiency of individuals who have completed NPTEL courses. The NPTEL Cloud of Achievements stands as a beacon of accomplishment, symbolizing the dedication and excellence of learners who have embarked on a journey of knowledge enrichment through NPTEL's online courses. As you step into this virtual space, you are greeted by a constellation of achievements, each representing the milestones reached by learners across diverse fields of study.

Within this cloud, you will find a mosaic of accomplishments, showcasing the breadth and depth of knowledge acquired by individuals from all walks of life. From engineering to humanities, from sciences to management, the NPTEL Cloud embraces the diversity of learning endeavors undertaken by our participants.

Every star in this celestial expanse represents an individual's commitment to learning, their perseverance through challenges, and their mastery of course materials. These stars shine brightly, illuminating the path for others to follow and inspiring a culture of continuous learning and growth.

As you navigate through the NPTEL Cloud of Achievements, take a moment to celebrate the achievements of your peers, draw inspiration from their successes, and forge ahead on your own educational journey with renewed vigor and determination.

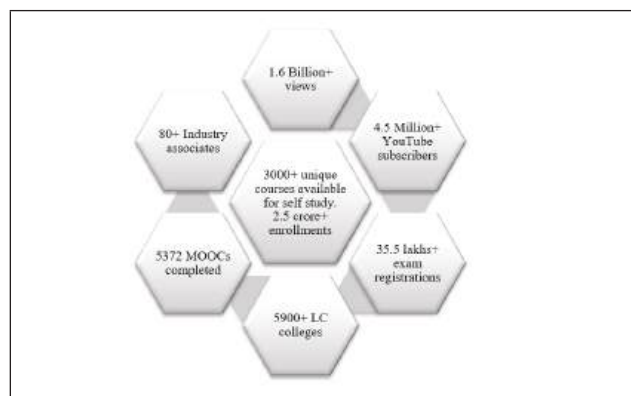


Fig. 4: NPTEL Cloud of Achievements

According to observation, we found that a maximum of 41.8% of courses are offered by the local chapter portal. We have found the maximum enrollment (1726213), registration (236628), and certification (225530) in July-December 2021. We noted that 88% of students were enrolled, 7% were registered and only 5% of the students were got certified (Fig.2). Likewise, it was seen that 95% of the students were Enrolled but not registered for the certification (Fig.3). Nevertheless, It was also marked that the maximum number (164765) of student were certified at Jul-Dec 2019 and 894316 students were got certified by NPTEL till July-December 2021 (Table 3).

Besides, the contribution of MHRD-NPTEL to Sustainable education towards a Greener Future, it was also observed that still, the rate of certified students was still very low. However, the systematic awareness program would be beneficial to increase the rate of student certification by MHRD-NPTEL for Sustainable education.

Rare literature e.g., Ravi and Jani (2011), has been available towards the focused study on the significance of NPTEL-based teaching and learning system. Ravi and Jani (2011) conducted a comprehensive survey of 850 students and faculty members of eight different Engineering Colleges in Gujarat, India and based on the observations showed the significant contribution of the Preleased learning system among students and teachers of higher education.

## Conclusion

In conclusion, the Teaching-Learning Evaluation of MHRD-NPTEL for Sustainable Education Towards a Greener Future underscores the pivotal role of digital platforms in fostering environmental consciousness and sustainable practices among learners. The initiative's comprehensive curriculum, accessible resources, and interactive learning modules have demonstrated efficacy in cultivating awareness and understanding of environmental issues. Through fostering a culture of innovation and collaboration, MHRD-NPTEL has empowered individuals to contribute meaningfully towards building a greener future. As we continue to embrace digital education as a catalyst for change, integrating sustainability into educational initiatives like NPTEL becomes increasingly imperative in shaping a more environmentally conscious society. These MOOCs are a promising step for MHRD to serve quality education to every student irrespective of

their economic condition and also accessible for students belonging to remote areas. MHRD-NPTEL provide sustainable greener education and the certified students can use credits earned from the NPTEL certification programme for their degree programmes as per UGC guidelines. Our comprehensive statistical secondary research analysis revealed that a maximum of courses are offered by the local chapter portal. Additionally, it was noted that the maximum enrollment, registration, and certification were recorded in July-December 2021. Furthermore, it was marked that 88% of students were enrolled but only 5% of the students were certified showing a very poor rate of certified students. However, the systematic awareness program would be beneficial to increase the rate of student certification by MHRD-NPTEL for sustainable education.

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## FEATURE ARTICLE

## Cultivating Sustainable Minds: Teaching and Learning for Sustainable Development

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### Abstract

*Sustainable development stands as one of the paramount challenges of our time. In the face of global challenges such as climate change, resource depletion, and social inequality, the importance of sustainable development has never been clearer. As humanity struggles with the consequences of past actions and seeks pathways to a more equitable and environmentally responsible future, education emerges as a powerful tool for fostering the necessary mindset and skills. Teaching and learning for sustainable development play a pivotal role in shaping the attitudes, knowledge, and behaviours needed to address these pressing issues effectively. In the quest for a sustainable future, education emerges as a powerful catalyst for change.*

*In the wake of global challenges such as climate change, resource depletion, and social inequality, the imperative for sustainable development has never been more pressing. At the heart of this endeavour lies education. Teaching and learning for sustainable development are not just about imparting knowledge; it's about fostering critical thinking, empowering individuals, and inspiring action towards a more equitable and resilient future. This article delves into the significance of teaching and learning for sustainable development and explores strategies to integrate it into educational systems worldwide. By integrating principles of sustainability into teaching and learning practices, we can foster a generation of informed, engaged, and proactive individuals committed to building a more sustainable future. In this article, the significance of teaching and learning for sustainable development and how educators can empower learners to become agents of positive change have been explored.*

Key Words: Sustainable Development, Teaching, Learning, Sustainability Education, Mindfulness

### Sustainable Development

Sustainable development, as defined by the United Nations, is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It encompasses three interrelated pillars: economic, social and environmental sustainability, thus, emphasizing the interconnectedness of well-being and ecological health. Achieving sustainable development requires a paradigm shift in how one thinks and approach education. Traditional models of education often prioritize rote memorization and standardized testing over critical thinking, creativity and problem-solving skills. However, in the face of complex and interconnected challenges, such approaches are no longer sufficient.

Educating individuals about sustainable development involves not only imparting knowledge about environmental conservation and social justice but also instilling values of responsibility, empathy, and critical thinking. Achieving sustainable development requires addressing issues such as poverty, climate change, biodiversity loss, and resource depletion in a holistic manner.

At the heart of teaching and learning for sustainable development is the recognition that education must go beyond traditional subject boundaries. It requires an interdisciplinary approach that integrates concepts from various fields such as science, economics, ethics and cultural studies. By examining complex issues through multiple lenses, students gain a deeper understanding of the interconnected nature of global challenges and the potential solutions.

One essential aspect of teaching and learning for sustainable development is fostering systems thinking. This involves understanding the interdependencies and

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feedback loops that characterize social, economic and environmental systems. By exploring how actions in one area can have far-reaching consequences elsewhere, students develop a holistic perspective that is crucial for addressing sustainability challenges effectively.

Furthermore, education for sustainable development emphasizes the importance of experiential learning and real-world application. Beyond classroom instruction, students benefit from hands-on experiences, such as fieldwork and simulations, that allow them to engage directly with sustainability issues and develop practical skills for problem-solving and collaboration.

Technology also plays a significant role in teaching and learning for sustainable development. Digital tools and platforms offer opportunities for innovative teaching methods, such as online courses, virtual reality simulations and interactive multimedia resources, that can reach a wide audience and facilitate active participation and engagement.

Moreover, teaching and learning for sustainable development are not limited to formal educational settings. Informal learning opportunities, such as community workshops, nature excursions and online forums provide avenues for lifelong learning and collective action. By empowering individuals to take ownership of their learning journey and engage with others in their communities, these informal initiatives contribute to building a culture of sustainability.

Central to teaching for sustainable development is raising awareness and understanding of the interconnectedness between environmental, social, and economic systems. Educators play a crucial role in facilitating discussions, providing accurate information and fostering critical thinking about sustainability issues. By integrating concepts such as ecological footprint and sustainable consumption into curriculum, educators can empower students to comprehend the consequences of their actions and make informed decisions.

One of the key pillars of teaching and learning for sustainable development is environmental education. By educating students about ecological principles, biodiversity, climate change and conservation efforts, educators empower them to become stewards of the environment. This can be achieved through hands-on experiences such as outdoor

learning activities, community projects and sustainable campus initiatives. By engaging with their surroundings, students develop a deeper appreciation for nature and a sense of responsibility to protect it.

In addition to content knowledge, teaching for sustainable development emphasizes the development of twenty first century skills such as critical thinking, communication, collaboration and creativity. These skills are essential for navigating the uncertainties of the future and finding innovative solutions to sustainability issues. Inquiry-based learning approaches, project-based learning, and interdisciplinary studies are effective strategies for fostering these skills while addressing real-world sustainability challenges.

Moreover, online resources provide educators with innovative ways to engage students and explore sustainability topics. Virtual simulations, interactive platforms and multimedia presentations can enhance learning experiences and facilitate global collaboration on sustainability initiatives. Ultimately, the goal of teaching and learning for sustainable development is to empower individuals to become active agents of change in their communities and beyond. By equipping students with the knowledge, skills and values needed to address sustainability challenges, education becomes a catalyst for building a more resilient, equitable, and environmentally sustainable world.

## **Integrating Sustainable Development Into Education**

To effectively integrate sustainable development into education and promote sustainable development through education, a multi-dimensional approach is necessary. It is essential to integrate sustainability principles across all levels of learning, from early childhood education to higher education and lifelong learning. This integration can take various forms as describe below/

### **i. Teaching for Sustainability:**

Incorporating sustainability into educational curriculum at all levels is essential for nurturing environmentally responsible citizens. Teachers can integrate sustainability concepts across various subjects, encouraging interdisciplinary learning and real-world application.

For instance, science classes can explore ecological systems and renewable energy, while social studies can delve into global citizenship and social justice issues. By connecting classroom learning to real-life experiences, teachers can inspire students to recognize their role in creating a more sustainable world. Moreover, Curriculum frameworks should incorporate interdisciplinary content on sustainability, including environmental science, social studies, economics and ethics. This ensures that learners develop a comprehensive understanding of sustainability issues and their implications.

## **ii. Interdisciplinary and Experiential Learning:**

Teaching for sustainable development requires an interdisciplinary approach that transcends traditional disciplinary boundaries. By integrating insights from various fields such as environmental science, economics, sociology, and ethics, educators can provide students with a holistic understanding of the complex challenges facing our world. Hands-on experiences, such as field trips, outdoor activities, and community projects, allow learners to engage directly with sustainability challenges and solutions. These experiences foster creativity and problem-solving skills essential for addressing real-world issues.

## **iii Critical Inquiry:**

Education should emphasize critical thinking skills enabling learners to analyse complex socio-environmental systems and understand the root causes of sustainability challenges. This equips them to develop informed perspectives and make ethical decisions. Encouraging critical inquiry and evidence-based reasoning to evaluate information, challenge assumptions and develop informed perspectives on sustainability issues fosters a culture of open dialogue, curiosity and constructive debate where diverse viewpoints are respected and valued.

## **iv Systems Literacy:**

Cultivating system thinking skills that enable students to analyse the interconnectedness of systems, identify leverage points for change and anticipate unintended consequences emphasizes the importance of considering long-term impacts. Teaching for sustainable development encourages systems literacy and thinking by analysing the feedback loops between various components of a system.

Through interdisciplinary learning experiences, students can grasp the complexity of sustainability challenges and recognize the need for integrated solutions that address multiple dimensions.

## **v. Value Education:**

Instilling values such as solidarity and environmental responsibility is integral to fostering a culture of sustainability. Education should promote ethical awareness and a sense of global citizenship, motivating individuals to take collective action for positive change. By integrating principles of sustainability ethics, such as respect for biodiversity into the educational framework, educators can nurture a sense of ethical responsibility towards future generations. Ethics, empathy, and a sense of responsibility towards future generations are essential components of sustainable citizenship too. Educators can foster these values through reflective practices, discussions on ethical dilemmas and opportunities for empathy-building activities.

## **Education for Sustainable Development Initiatives:**

Supporting Education for Sustainable Development initiatives at the institutional, national and international levels, such as UNESCO's Global Action Programme on Education for Sustainable Development aims to mainstream sustainability into education policies and practices worldwide.

## **Teacher Training and Professional Development:**

Equally important is the role of educators in modelling sustainable behaviours and pedagogical practices. Professional development programs can equip teachers with the necessary tools and resources to integrate sustainability into their teaching effectively. By fostering collaboration and sharing best practices among educators, institutions can create a supportive environment conducive to innovation and continuous improvement. Equipping educators with the knowledge and pedagogical skills to integrate sustainable development into their teaching practices is essential. Teacher training programs should emphasize experiential learning methods, interdisciplinary approaches and collaborative teaching strategies.

**Active Learning:**

Passive learning methods have limitations in addressing the multifaceted nature of sustainability issues. Active learning approaches, such as project-based learning and service learning, enable students to actively engage with world problems and collaborate on meaningful solutions. By immersing themselves in environmental initiatives, students acquire practical skills and develop a sense of responsibility towards creating positive change.

**Fostering Innovation and Entrepreneurship:**

Sustainable development requires innovative solutions that challenge conventional practices and promote sustainable alternatives. Education plays an important role in fostering innovation and entrepreneurship geared towards sustainability. By nurturing entrepreneurial mindset, educational institutions can empower students to develop sustainable technologies, business models and social enterprises that address pressing environmental and social issues.

**Leveraging Technology for Sustainable Development Education:**

In this digital era, from online courses and virtual simulations to data analytics and collaborative platforms, technology offers innovative tools to engage students in sustainability learning. By harnessing the power of digital technologies, educators can create immersive learning experiences, facilitate knowledge sharing, and empower students to become agents of change in their communities.

**Empowerment and Agency:**

Empowering students to become agents of change by providing opportunities for leadership development and civic engagement. Moreover, encouraging them to identify their passions and talents and leverage them to make meaningful contributions to sustainable development efforts within their communities and beyond have become important milestones.

**Building Partnerships and Collaboration:**

Achieving sustainable development requires collective action and collaboration across diverse stakeholders,

including governments, businesses, civil society and educational institutions. Teaching for sustainable development emphasizes the importance of building partnerships and fostering collaborative networks both within and beyond the classroom. By establishing partnerships with local communities, NGOs and businesses, educators can create authentic learning experiences that bridge the gap between theory and practice.

Moreover, teaching and learning for sustainable development require a whole-school approach involving collaboration among teachers, administrators, students, parents, and the community. Schools can serve as models of sustainability by implementing green practices, reducing waste, conserving energy, and promoting sustainable transportation options. Engaging with the local community through partnerships and outreach initiatives can also enrich students' learning experiences and inspire collective action for sustainability.

**Empowering Global Citizens:**

Teaching and learning for sustainable development also nurture global citizenship. In an increasingly interconnected world, understanding global sustainability challenges and fostering empathy towards diverse communities are essential. Through cross-cultural exchanges, service-learning projects and partnerships with local and global organizations, students gain a deeper appreciation of global interdependence and their role as responsible citizens of the world.

**Challenges and Opportunities:**

While progress has been made in integrating sustainable development into education, significant challenges persist. These include limited resources, institutional barriers and resistance to change within educational systems. However, there are also opportunities for innovation and collaboration. Technology, for instance, offers new avenues for interactive learning and global networking, enabling educators and learners to connect across boundaries and share best practices.

Therefore, while integrating sustainability into education presents numerous benefits, it also poses challenges such as limited resources, institutional resistance and curriculum constraints. Overcoming these barriers

requires collaboration among educators, policymakers, industry stakeholders and community partners to prioritize sustainability education, allocate sufficient resources and foster a culture of innovation and continuous improvement.

Moreover, addressing issues of sustainability requires systemic change at multiple levels, including policy, infrastructure, and socio-cultural norms. However, these challenges should not deter us from pursuing the transformative potential of education for sustainable development. By fostering collaboration among stakeholders, leveraging technology and advocating for supportive policies, one can overcome barriers and create a more inclusive, equitable and sustainable education system for all.

Despite the growing recognition of the importance of education for sustainable development, various challenges persist, including institutional inertia and the need for transformative changes in educational systems and practices. Additionally, addressing sustainability requires navigating complex socio-political dynamics and balancing short-term interests with long-term goals.

Amidst these challenges lie significant opportunities for innovation, collaboration and collective action. Advances in technology and digital learning platforms provide new avenues for delivering education for sustainable development to diverse audiences worldwide. Moreover, partnerships between governments, civil society organizations, academia and the private sector can leverage resources and expertise to scale up efforts and accelerate progress towards sustainability.

Teaching and learning for sustainable development, therefore, present both significant challenges and promising opportunities in education systems worldwide. As the global community increasingly recognizes the urgency of addressing environmental, social and economic issues, integrating sustainability into educational practices becomes paramount. Some of the key challenges and opportunities associated with teaching and learning for sustainable development include:

### **Challenges:**

**Curriculum Integration:** One major challenge is integrating sustainability concepts across various disciplines within the curriculum. This requires redesigning existing

curriculum to incorporate interdisciplinary approaches that address environmental, social and economic dimensions of sustainability.

**Teacher Training:** Many educators may lack adequate training and resources to effectively teach sustainability concepts. Professional development programs need to be implemented to equip teachers with the necessary knowledge, skills and teaching strategies for integrating sustainability into their classrooms.

**Limited Resources:** Schools often face constraints such as limited funding, outdated infrastructure and inadequate teaching materials, hindering efforts to implement sustainability education initiatives effectively.

**Resistance to Change:** Resistance from stakeholders, including administrators, parents and policymakers can pose a challenge to the integration of sustainability education. Addressing misconceptions and fostering buy-in for sustainability initiatives is essential for overcoming resistance to change.

**Assessment and Evaluation:** Traditional assessment methods may not adequately measure students' understanding of sustainability concepts, as they often prioritize memorization over critical thinking and problem-solving skills. Developing appropriate assessment tools and criteria for evaluating sustainability education remains a challenge.

### **Opportunities:**

**Holistic Learning:** Teaching for sustainable development provides an opportunity to adopt a holistic approach to education, fostering interconnectedness between environmental, social and economic systems. This approach encourages critical thinking, systems thinking and a deeper understanding of complex global issues.

**Experiential Learning:** Incorporating experiential learning opportunities such as outdoor education, service-learning projects, and real-world problem-solving activities enables students to apply sustainability concepts in practical contexts, fostering deeper engagement and understanding.

**Interdisciplinary Collaboration:** Collaboration between different disciplines, sectors, and stakeholders is essential for addressing multifaceted sustainability challenges. Integrating sustainability into education encourages



interdisciplinary collaboration among educators, researchers, policymakers and community members.

**Empowering Students:** Teaching for sustainable development empowers students to become active agents of change in their communities and beyond. By fostering values such as empathy, responsibility, and environmental stewardship, sustainability education nurtures a sense of agency and resilience in students.

**Innovation and Creativity:** Embracing sustainability in education cultivates innovation and creativity by encouraging students to explore alternative solutions to complex problems. This fosters the development of critical thinking, problem-solving and entrepreneurial skills essential for navigating a rapidly changing world.

In conclusion, while teaching and learning for sustainable development pose significant challenges, they also offer invaluable opportunities for fostering a more equitable, resilient and sustainable future. By addressing these challenges and leveraging the opportunities presented, educators can play a crucial role in preparing students to tackle the complex sustainability challenges of the twenty first century.

## Conclusion

Sustainable development education goes beyond traditional academic subjects. It encompasses interdisciplinary learning that explores the intricate connections between environmental, economic and social systems. Students are encouraged to critically examine the root causes of sustainability challenges and explore innovative solutions through collaboration, creativity and critical thinking.

Teaching and learning for sustainable development are essential for building a more inclusive, resilient and sustainable world. By integrating sustainability principles into education, we empower present and future generations to become agents of positive change. As educators, policymakers and stakeholders, we must work together to prioritize sustainability in educational policies, curriculum and practices. Only then can we ensure that education becomes a powerful force for building a brighter future for all.

Effective teaching for sustainable development requires a shift towards pedagogical approaches that prioritize inquiry, collaboration, and real-world application. Rather

than relying solely on traditional didactic methods, educators are encouraged to embrace participatory and problem-based learning techniques that engage students in critical thinking and decision-making processes.

Teaching and learning for sustainable development are essential components of efforts to create a more sustainable future. By adopting an interdisciplinary approach, fostering systems thinking, promoting experiential learning, harnessing technology and embracing informal education, we can empower individuals to contribute meaningfully to the transition towards a more just and sustainable society. Through education, we have the opportunity to inspire the next generation of leaders, innovators and global citizens committed to building a better world for all.

Interdisciplinary approaches are particularly valuable in addressing the complex and interconnected nature of sustainability challenges. By breaking down disciplinary silos and fostering interdisciplinary dialogue, educators can provide students with a holistic understanding of sustainability issues and encourage creative thinking across diverse perspectives.

Teaching and learning for sustainable development are indispensable tools for fostering a more equitable, resilient and environmentally sustainable future. By equipping individuals with the knowledge, skills, values and ethics necessary for sustainable living, education holds the key to addressing pressing global challenges and creating a world where present and future generations can thrive. As we navigate towards a sustainable future, investing in transformative education becomes not only a moral imperative but also a strategic necessity.

Furthermore, the integration of sustainability into educational policies and frameworks is essential for mainstreaming sustainable development across all levels of education. By embedding sustainability principles into educational standards and assessments, policymakers can ensure that future generations are equipped with the knowledge and skills necessary to navigate a rapidly changing world.

Teaching and learning for sustainable development are essential for preparing students to address the complex challenges of the twenty first century. By integrating principles of sustainability into education, we can empower future generations to become informed, responsible



and active global citizens committed to creating a more sustainable and equitable world. As educators, we have the power to inspire and shape the leaders of tomorrow who will drive positive change towards a sustainable future.

By fostering a culture of sustainability, building critical thinking skills, nurturing global citizenship, embracing experiential learning and leveraging technology, educators can empower students to become catalysts for positive change. Together, we can inspire a new generation of leaders committed to building a more just, equitable and sustainable world.

On the other side of the equation, fostering a culture of lifelong learning is essential for promoting sustainable development. Beyond formal education settings, individuals must have access to continuous learning opportunities that enable them to stay informed about emerging sustainability issues and develop the skills needed to address them effectively.

Informal and non-formal education platforms, such as community workshops, online courses and experiential learning programs, play a crucial role in complementing formal education efforts and reaching diverse audiences. By fostering collaboration between educational institutions, civil society organizations, and the private sector, we can create a vibrant ecosystem of learning for sustainable development that empowers individuals of all ages and backgrounds to contribute to positive change.

Teaching and learning for sustainable development are essential for creating a more equitable, prosperous and environmentally sustainable world. By integrating sustainability into educational curriculum fostering experiential learning, promoting critical thinking and cultivating values and mindsets that prioritize sustainability, educators can empower students to become active agents of change. Together, we can work towards a future where human well-being, environmental health and economic prosperity are harmoniously balanced for the benefit of all generations to come.

By embracing interdisciplinary approaches, experiential learning, systems thinking, critical inquiry and empowerment, educators can inspire a new wave of changemakers committed to building a more sustainable and equitable world. Together, we can seize the transformative power of education to create a brighter future for all. As

educators, policymakers and global citizens, we must recognize the transformative power of education and work together to harness its potential for the greater good.

Teaching and learning for sustainable development are critical components of our collective efforts to build a more sustainable and resilient future. By equipping students with the knowledge, skills and values necessary to address complex global challenges, education empowers future generations to become active stewards of the planet. As we navigate the uncertainties of the twenty first century, investing in sustainable education is not only a moral imperative but also a strategic necessity for ensuring the well-being of present and future generations.

It is an essential pillar of the global effort to build a more sustainable future for all. By integrating sustainability principles into education systems and practices, we can empower individuals with the knowledge, skills, and values necessary to address the complex challenges facing our planet and create a world where prosperity is shared and ecosystems thrive. As we strive towards this vision, we can recognize the transformative power of education and work together to harness its potential for the greater good of present and future generations.

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## FEATURE ARTICLE

## Open and Distance Learning in India: A Study of Dehradun District of Uttarakhand

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### Abstract

*Education is at the crossroad. It plays an important role in the overall development of the human beings, and is considered as a catalyst of social change. Open and distance learning (ODL) plays an important role in providing quality education to the learners who are unable to be a part of the formal system of education for some reasons or the other. Open and distance learning is becoming a source of education for the marginalized and disadvantaged sections of the society. Regardless of caste, creed and religion, it provides uniform education to different sections of the society. The purpose of this research paper titled, 'Open and distance learning in India: A Study of Dehradun District of Uttarakhand' is to assess the attitude and satisfaction level of the learners towards open and distance learning.*

Keywords: Education, Open and Distance learning, NIOS, Open Schooling

### Introduction

Today, education is at the cross road. With newer methods being devised to meet the needs of the times, Open and Distance Learning (ODL), as an important medium of dissemination of knowledge, has emerged as an alternative education to reach out to the marginalized and disadvantaged segments of the society and is meeting the challenges of illiteracy and analphabetism appreciably. Considered as the need of the hour, the open and distance learning, especially at the secondary and senior secondary school level, is for those who have no or less access to normal schooling but wish to continue their education to compete in the changing world. The ODL mode has proved to be a potent instrument to combat illiteracy effectively, as it has the power to extend easy access to education to

various segments of society, particularly to the individuals who are living in inaccessible territories.

It is well perceived that ODL has the possibility to provide a meaningful source of education for the marginalized and disadvantaged sections of the society for it aims to advance and disseminate education through various programmes for the benefit of the learners and caters to the needs of the different sections of the people in a simple and effective manner. It is seen that while Open Schooling, in reality, aims at drawing out the best in individuals. ODL helps and encourages learners to continue education through distance mode who due to some reasons or other are not able to continue education in the past.

### Need and Significance of the Study

Open and Distance Learning (ODL) is the provision of distance education opportunities in ways that seek to mitigate or remove barriers to access, such as finances, prior learning, age, social, work or family commitments, disability, incarceration or other such barriers. Open and distance learning thus provides a platform to the individuals who need to continue and upgrade their education and also skill development. In the hilly region of Uttarakhand, the ODL mode is very effective and important to reach to the people residing in the tough geographical terrains and to the marginalized sections of the society. The open schooling is playing an important role in the hilly regions, as most of the children left or dropped out from school, especially girl students in the rural areas, due to various reasons such as the long distance of the school from home or poor economic conditions of the family. The open schooling with its learner-friendly characteristics like flexibility of place as per the learners need, SLM, ICT support, PCP and students support services helps to resolve

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the problems of the learners. The following are some of the studied conducted earlier which will support the present research study.

Mythili (2017), in her study, assessed the satisfaction and performance of the academic counselors in an online training program. To study the relation between the level of satisfaction and improvement in performances, four sub-groups were identified on the basis of the level of improvement of performances shown after the training. The findings of the study show that the sub-group with lowest improvement in scores displayed the lowest satisfaction rate, whereas the sub-group with the highest improvement in scores showed the highest level of satisfaction. Bordoloi (2018) observed that ODL raised an elective path for making education accessible and for providing scope for skill-based education at minimum cost and engaging the energetic grown-up population of a nation like India. Duggal (2016) tried to discover the reasons of learners dropout in nonprofessional undergraduate degree program of the IGNOU. The findings of the study show that the major reason of their dropout was ignorance about the system of IGNOU. It is reflected that the dropped-out students could have been retained by orienting them about the flexibility and facilities provided to them in terms of re-registration, maximum duration, readmission, change of regional center, change of study center, change of courses, facility of repeatedly appearing in examination, so on and so forth, and also by giving them guidance, on a constant basis, to enable them to plan their studies effectively and complete their programmes successfully. Similarly, Husni (2020) explored the contribution of student support in increasing student persistence by employing mixed methods approach. The study utilized 13 consecutive informative plans by gathering the quantitative information from 14 looking over 153 students. The study shows that student support had a 15 significant role in imparting student steadiness. The study also suggested the 16 improvement of student support at the level of effective, cognitive, and systemic 17 in order to enhance learner's persistence. Deepak Paliwal (2019) also concludes that ODL has emerged as an effective tool to educate the learners, particularly residing in the far-flung areas and who are not able to have access to education due to tough geographical conditions, social and cultural taboos and economic backwardness

The above study of the review of literature put forth a clear frame that as far as the open schooling in hilly areas is

concerned, no study on the above topic has been done. Therefore, considering the above factors the researcher felt the need of conducting the present study to know the role and importance of the open schooling and the view of the learners towards it in the Dehradun District of Uttarakhand state.

## Objectives of Study

Setting objectives is an important part of any research or study, especially when the results are to be presented and discussed in a written report. When objectives are set, they clearly and concisely describe the aims and goals of a project while defining their scope for investigation.

The present study was undertaken to explore the following two principal aspects of the subject under consideration.

- Assessment of learners views towards open and distance learning; and
- Evaluation of the role of open and distance learning in providing quality education to the learners.

## Methodology

The methodology used for the present research study is one generally adopted in exploratory and descriptive research. Here, the researcher has principally used analytical and explorative research as a methodology to find out plausible answers to the abovementioned questions. The data for the study has been collected from primary and secondary sources and analysis has been done accordingly. A questionnaire, administered for the purpose, contained thirteen items to be answered by the respondents. In addition to intensive field work, secondary data were collected from the sources like records, manuscripts, survey reports and many other related studies and their findings for the present study.

The study followed the research followed is one commonly followed in doing any descriptive research. The main objective in selecting the particular methodology was to explore the various facets of the subject under examination and gather pertinent information for reaching a rational conclusion. This was done to do an in-depth study of the issues pertaining to the study and have a thick, deep and holistic view of the entire subject. In this context, primary recourse has been taken in the secondary data. The

sample for the present research study included thirty-two centers of National Institute of Open Schooling located in the Dehradun District of the Uttarakhand. A total of 300 students enrolled in these centers and studying in class 10 and 12 respectively were selected for collecting the data. The data comprised both male and female students.

The data was collected mainly from secondary sources in the study. Various publications, reports, manuals, formats etc. have been used to collect secondary data. Some amount of survey work was also been conducted through interviews, observation and scanning through the published data to systematically collect the desired information about from the respondents. This is done to have a clear understanding of the various factors that have a direct or indirect bearing on the study and gets reflected clearly during collection of the data. The data has been analyzed to reach an objective conclusion for interpreting meaningful inferences.

## Major Findings

A careful analysis and interpretation of the data points to the following findings and elicit very important revelations about the impact of Open and Distance Learning (ODL) in India. The major findings as inferred from the data are elucidated below.

- The majority of the respondents replied that through ODL, it is possible to continue their education and domestic work together. A positive attitude was seen among the learners towards learning through NIOS.
- Respondents also opined that National Institute of Open Schooling (NIOS) is trying its best in developing the attitude and aptitude among the learners for education to those who cannot afford for acquiring education through the main stream.
- No difference was found towards the impact of NIOS in imparting the education to male and female learners.
- It was also inferred that by spreading education in the remote and far-flung areas through its study centers located in various locations, the NIOS was found to be effective in realizing its objective of extending good education available to everyone, regardless of race or gender, specially to the rural and urban people, disadvantaged and underprivileged sections of the society, unemployed and partly employed people, school dropouts, people with special needs i.e., physically and mentally challenged persons and minorities. The study, however, revealed that there is more need of creating awareness among the people in the far-flung areas by opening more centers as per the need and geographical location of the area.
- Counseling is an important component of open learning system. The study shows that the learners were fully satisfied with the counseling sessions and with the counselors of the centers. The majority of the centers are running in the Government Schools and other senior secondary schools, where trained teachers are available to solve the problems of the learners every time whenever they visit the center.
- Distance of the center is not the problem as far as the learners are concerned, as most of the centers are located in the nearby Government schools.
- The findings of the study show that majority of the learners were satisfied with the performance of the open schooling, and have a positive attitude towards open schooling. The learners are of the view that because of open schooling, they have gained self-confidence and better status in the society and don't consider themselves as loser but it is helpful for them and their family.
- The girl respondents are fully satisfied with the ODL system of learning as inspite of their basic problems they are able to carry on their studies due to flexibility of the ODL programme and no bar of time and years to finish their studies in ODL.
- Though computers are available in the centers; but in the hill regions, the centers do not possess computers in adequate numbers, and the net connectivity in the centers is not up to mark. The learners either visit cyber cafe or friends' house to download the admit card and other materials required.
- Another problem which was note was that the large numbers of counselors are from the conventional system and are not acquainted with the philosophy and communication methods of distance education, sometimes defeating the purpose and objectives of counseling sessions. Hence, it is suggested that the orientation program of at least 10-15 days should be organized for the counselors to upgrade their knowledge regarding various aspects of distance education.



- The present research paper will be helpful to the policy and decision makers in evolving and strengthening the ODL philosophy in order to cater the needs of the large sections of the society, deprived from education particularly residing in the far-flung and remote areas.

### Inference

Open and distance learning is assuming an essential role in granting school advanced education through distance mode. It provides opportunities to those who left the study in between and did not have access to learning. Through its different traditional, professional and functional courses, open and distance learning is a boon to the deprived learners through distance mode. The need of the hour is to promote distance learning so that the drop outs and the individuals who are unable to carry on their study through main stream of education can get a chance of learning through distance mode of education and become the part of the scholarly society. Recent years has witnessed a tremendous increase in the enrollment number in ODL institutions. Further, there is a need to keep a check on the private universities or institutions offering the distance program without any recognition from the concern authority. The distance education system provides opportunities not only to younger students but also to those from the older age groups. The spirit and positive side of the ODL is to provide opportunity to everyone, regardless of age, caste and sex. With the help of above finding, it can be safe concluded that ODL has emerged as an effective tool to educate the deprived learners, particularly residing in the far-flung areas and who have not access to education due to tough geographical conditions, social and cultural taboos and economic backwardness of the Dehradun district of Uttarakhand State.

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## FEATURE ARTICLE

## A Conceptual Study of Teaching and Learning for Sustainable Development: Teachers' Perspective

Haripad Kumar Mahato\*, Bikash Kumar\*\*, Raj Mohan Mahato\*\*\*

### Abstract

*With the shift from the global education view to the teacher's perspective, more teaching experts have gradually deepened their teaching and learning strategies on sustainable development abilities of teachers in schools and colleges. Such important interventions have been initiated to enhance the competence of teachers by developing their personality, teaching, and learning to bridge the gaps been teaching strategy and practice of teachers and thereby contribute towards sustainable development. The core issue here is to sharpen their teaching and learning acumen and thus augment the thrust on future empowerment, job transfer, and promotion of teachers. However, looking into the state of teacher education and its alignment to sustainable development, it becomes imperative that the field is still very much characterized by courses and projects in individual disciplines.*

*This study provides an elucidation of the teacher's needs and relate it to sustainable development and explores the crucial role of teachers in fostering sustainable development through education. It also seeks to discover the, challenges faced by teachers in incorporating sustainable development principles into their curriculum, and pedagogical approaches, perspectives of educators regarding teaching and learning practices geared toward sustainability, Through a qualitative analysis of teacher interviews and educational literature, this research shall provide insights into the importance of teacher training, curriculum design, and institutional support in promoting sustainable development education. In due course, the findings would highlight the necessity for continuous professional development and collaborative efforts among educators, policymakers, and stakeholders to advance sustainable development goals in educational settings.*

Key Words: Sustainable Development, Teaching and Learning, Teacher's Perspective

### Introduction

Teaching decisions of teachers refer to a series of dynamic processes of determining the most effective teaching and learning plans, wherein the teachers deploy their subjective ability through prediction, analysis, and reflection on teaching and learning practice and by their own beliefs, knowledge, and constantly formed practical wisdom, thus achieving objective and completing teaching learning task as sustainable development (Kang, Gao & Liang, 2006).

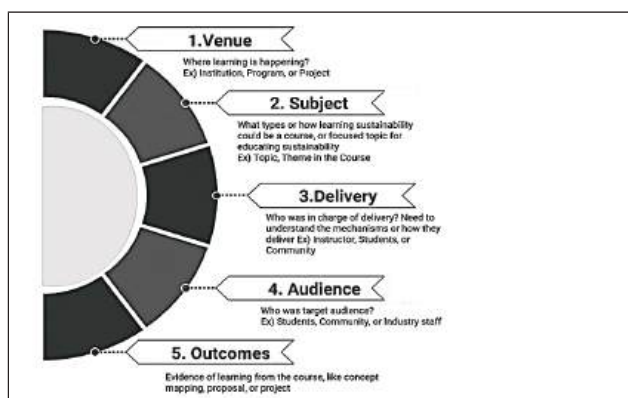
In recent decades, the concept of sustainable development has gained significant attraction as societies worldwide grapple with environmental, social, and economic challenges. At the heart of this global endeavor lies education, recognized as a powerful tool for instilling the values, knowledge, and skills necessary for building a sustainable future. Within the realm of education, teachers play a pivotal role in shaping the attitudes and behaviors of future generations toward sustainability. Their perspectives, practices, and challenges in integrating sustainable development principles into teaching and learning processes are critical factors in advancing this agenda. This paper examines the intricate relationship between teaching and learning and sustainable development of teachers. By delving into the experiences, insights, and strategies of teachers, this research seeks to elucidate the opportunities and obstacles encountered in incorporating sustainability concepts into educational practices. The exploration of teachers' perspectives offers valuable insights into the effectiveness of current approaches to sustainability education and informs potential avenues for improvement.

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The introduction of this study provides a foundation for understanding the importance of sustainable development with the central role of education and teachers in teaching and learning. The paper explores the intricate relationship between teaching and learning for the sustainable development of teachers. By probing into the experiences, insights, and strategies of teachers, the study seeks to elucidate the opportunities and obstacles encountered in incorporating sustainability concepts into educational practices. Teachers' perspectives, and previews the key themes and findings to be discussed. Through inquiry, the paper aims to contribute to the ongoing discourse on teaching and learning education for sustainable development and provide actionable insights for educators, policymakers, and stakeholders invested in fostering a more sustainable future through education. We can better understand teaching and learning for the sustainable development of teachers through this figure.



**Fig. 1.1 Some Factor Effecting for Teaching and Learning**

[Source: [https://www.mdpi.com/sustainability/sustainability-14-9485/article\\_deploy/html/images/sustainability-14-09485-g001.png](https://www.mdpi.com/sustainability/sustainability-14-9485/article_deploy/html/images/sustainability-14-09485-g001.png)]

## Teaching for Sustainable Development

Teaching for sustainable development involves integrating sustainability principles into educational practices across all disciplines and levels of education. It aims to equip learners with the knowledge, skills, values, and attitudes needed to address the complex challenges facing society while promoting ecological integrity, social equity, and economic prosperity. By incorporating sustainability into the curriculum, educators can foster critical thinking, interdisciplinary learning, and a sense of global citizenship among students. Effective teaching for sustainable development goes beyond simply conveying information; it encourages to exploration of the teacher

interconnectedness of environmental, social, and economic systems and teaches their actions' implications on present and future generations. This approach emphasizes experiential learning, hands-on activities, and real-world applications, enabling teachers to develop practical solutions to sustainability issues in their communities. Moreover, teaching for sustainable development promotes collaboration, empathy, and cultural understanding, preparing teachers to work collectively toward a more sustainable and equitable future. By embracing teaching practices that prioritize sustainability, educators can inspire and empower the next generation to become informed and engaged stewards of the planet.

## Learning for Sustainable Development

Lisa Rohweder and Anne Virtanen introduced eight ways to integrate sustainable development 34 in higher education in Russia, Finland, Germany, Ukran, Poland and Estinia. The cases give insight into the innovative solutions of education for sustainable developments and establish the background for developing the model of learning for sustainable development (Rohweder & Virtanen, 2009). The sustainable development of learning involves ensuring that education systems are designed and implemented in a way that supports the principles of sustainable development. Here are some key aspects of learning for the sustainable development:

1. *Inclusive and Equitable Access*: Ensuring that all individuals, regardless of their background or circumstances, have equal access to quality education. This includes addressing barriers such as poverty, gender inequality, disability, and geographic location.
2. *Lifelong Learning*: Promoting a culture of lifelong learning that enables individuals to acquire knowledge, skills, and competencies throughout their lives. This includes formal education, non-formal education, and informal learning opportunities.
3. *Quality Education*: Providing education that is of high quality, relevant, and responsive to the needs of teachers and society. This involves curriculum development, teacher training, educational materials, and assessment methods that align with sustainable development goals.
4. *Education for Sustainable Development (ESD)*: Integrating sustainability principles into all levels of

education, from early childhood to higher education. ESD promotes critical thinking, creativity, and problem-solving skills necessary to address sustainability challenges.

5. *Environmental Stewardship*: Fostering a sense of environmental responsibility and stewardship among teachers. This includes teaching about environmental issues, promoting sustainable practices, and providing opportunities for environmental action and engagement.
6. *Cultural Diversity and Heritage*: Valuing and preserving cultural diversity and heritage through education. This involves incorporating diverse perspectives, languages, and cultural practices into the curriculum and promoting intercultural understanding and dialogue.
7. *Partnerships and Collaboration*: Building partnerships and collaboration among stakeholders, including governments, civil society, the private sector, and communities, to support the sustainable development of learning. This includes sharing resources, expertise, and best practices, as well as coordinating efforts to address common challenges.
8. *Monitoring and Evaluation*: Continuously monitoring and evaluating the effectiveness of education systems in promoting sustainable development goals. This involves collecting data, assessing outcomes, and making evidence-based decisions to improve learning outcomes and equity.

By focusing on these aspects, education systems can contribute to the advancement of sustainable development goals, empower individuals and communities, and build a more just, equitable, and sustainable world.

### Need of Teaching and Learning for Sustainable Development

Teaching and learning play a pivotal role for teachers in advancing sustainable development by fostering the knowledge, skills, and values necessary for individuals to understand, appreciate, and contribute to sustainability efforts. Education empowers individuals to comprehend the complex interconnections between social, economic, and environmental systems, enabling them to make informed decisions that promote sustainability from the teacher's perspective. By integrating sustainability principles into curricula at all levels of education, from

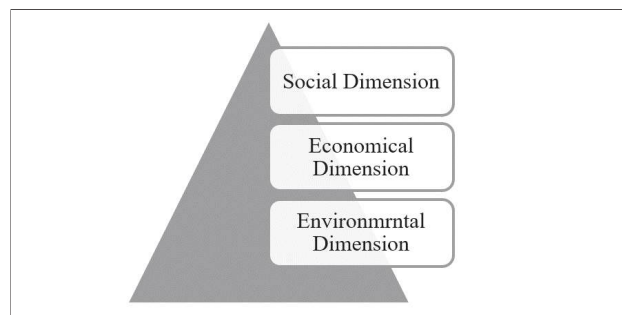
primary schools to universities, teachers can cultivate a generation of environmentally conscious citizens equipped with the tools to address pressing global challenges such as climate change, biodiversity loss, and resource depletion. Education for sustainable development is an opportunity to acquire knowledge, skill and values linked to the development of an equitable lifestyle, achieving long term positive social transformation (Ozturk, 2017; Joseph & Said, 2019; Carnen, Antonio & Estefania, 2021).

Moreover, teaching and learning for sustainable development of teachers not only impart knowledge but also inspire action and behavioral change. Through experiential learning opportunities, such as field trips, community service projects, and hands-on activities, teachers can develop a deep-seated commitment to sustainable practices and become agents of positive change in their communities. Furthermore, education encourages critical thinking, innovation, and collaboration, essential skills for devising creative solutions to sustainability challenges. By embedding sustainability education into the fabric of society, we can nurture a culture of responsibility and stewardship, ensuring a more resilient and equitable future for generations to come.

### Dimension of Teaching and Learning for Sustainable Development

Education for sustainable development is concern with equipping individuals, communities, and governments to live and act sustainably and understand environmental, social, and economic aspects of sustainable development (Reid, 2002; Sipra & Tuula, 2018)

we can create a graph to illustrate the dimensions of teaching and learning for sustainable development and how they relate to education. Here's a simplified representation:



**Fig. 1.2: Shown Dimensions of Teaching and Learning for Sustainable Development**



### **i. Social Dimension:**

In the pursuit of sustainable development, the social dimension of teaching and learning plays a pivotal role in fostering a holistic understanding of interconnected global challenges and equipping individuals with the knowledge, skills, and values necessary for meaningful engagement and action. Through inclusive educational practices that promote diversity, equity, and social justice, educators can cultivate critical thinking, empathy, and collaboration among learners, empowering them to address complex socio-environmental issues such as poverty, inequality, climate change, and human rights violations. By integrating perspectives from various disciplines and engaging with local communities, education becomes a catalyst for transformative change, nurturing responsible teachers who are committed to creating a more just, equitable, and sustainable world for present and future generations. A sustainable economy and society can only be the outcome of a social process of searching, learning and design (Rauch, 2004; Rauch & Steiner, 2013)

### **ii. Economic Dimension**

The economic dimension of teaching and learning for sustainable development involves equipping individuals with the knowledge, skills, and attitudes necessary to understand and address economic challenges while promoting long-term sustainability. This includes fostering an understanding of economic systems, principles of resource allocation, and the impacts of economic activities on the environment and society. Through education, teachers can explore alternative economic models such as circular economies and green growth strategies that prioritize resource efficiency, social equity, and environmental preservation. Moreover, emphasis on entrepreneurship, innovation, and responsible consumption patterns empowers individuals to contribute to economic prosperity while minimizing negative environmental and social externalities. By integrating economic literacy with sustainability principles, education becomes a powerful tool for shaping a resilient and inclusive economy that meets the needs of both current and future generations.

### **iii. Environment Dimension**

The environmental dimension of teaching and learning

for sustainable development focuses on fostering an understanding of the interdependence between human societies and the natural world, and the imperative of preserving ecological integrity for current and future generations. It involves educating individuals about environmental issues such as climate change, biodiversity loss, pollution, resource depletion, and habitat destruction, as well as their underlying causes and interconnectedness with social and economic factors. Through experiential learning, inquiry-based approaches, and hands-on activities, teachers develop a deep appreciation for nature and a sense of responsibility toward environmental stewardship. Education also emphasizes the importance of sustainable practices such as conservation, renewable energy adoption, waste reduction, and ecosystem restoration, empowering individuals to make informed decisions and take action towards a more sustainable and resilient planet. By integrating environmental education across disciplines and engaging with local communities, teaching, and learning become catalysts for building a collective commitment to safeguarding the environment and promoting a harmonious relationship between humanity and the Earth. Education is a conscious and planned effort to create a learning atmosphere and learning process so that student actively develops their potential to have power spiritual, religious, self-control, personality, intelligence, noble character, and skills need by him, and society, nation and state (Balthar, 2018; Susilawati, Widodo & Sumarno, 2019).

### **Scientific Rationale of Teaching and Learning for Sustainable Development**

The scientific rationale for teaching and learning for sustainable development lies in understanding and applying scientific principles to address pressing global challenges in a holistic and systematic manner. Science provides the knowledge, tools, and methodologies necessary to analyze complex environmental, social, and economic systems, identify root causes of sustainability issues, and develop evidence-based solutions. Through education, individuals gain scientific literacy, critical thinking skills, and an appreciation for the interconnectedness of natural and human systems. By integrating scientific inquiry with sustainability concepts, teachers can explore topics such as climate science, ecological conservation, renewable energy technologies, and sustainable agriculture, enabling



them to make informed decisions and contribute to positive change in their communities and beyond. Moreover, teaching and learning about sustainable development from a scientific perspective fosters innovation, collaboration, and interdisciplinary approaches, essential for addressing the multifaceted challenges facing the planet. Ultimately, by empowering teachers with scientific knowledge and skills, education becomes a powerful catalyst for building a more sustainable and resilient future for all.

## Critical Factors Effecting Teaching and Learning for Sustainable Development

Certainly, here are some key factors that can influence teaching and learning for sustainable development:

1. *Curriculum Integration*: Incorporating sustainability concepts across various subjects and disciplines to provide a comprehensive understanding of interconnected environmental, social, and economic issues.
2. *Teacher Training and Professional Development*: Equipping educators with the knowledge, skills, and resources necessary to effectively teach about sustainability and integrate it into their instructional practices.
3. *Student Engagement and Participation*: Fostering active learning experiences, hands-on activities, and opportunities for student-led projects that promote critical thinking, problem-solving, and collaboration in addressing sustainability challenges.
4. *Community Engagement and Partnerships*: Establishing connections with local communities, organizations, and stakeholders to provide real-world context, resources, and support for sustainable development initiatives within educational settings.
5. *Resource Allocation*: Allocating sufficient resources, including funding, materials, and facilities, to support sustainable development education and create conducive learning environments.
6. *Policy Support and Institutional Commitment*: Implementing supportive policies at the institutional, local, and national levels to prioritize and institutionalize sustainability education within formal and informal learning contexts.
7. *Interdisciplinary Approaches*: Encouraging collaboration across academic disciplines to explore complex sustainability issues from multiple perspectives and foster holistic understanding and innovative solutions.
8. *Technology Integration*: Leveraging technology tools and platforms to enhance learning experiences, facilitate access to information, and promote virtual collaborations for sustainable development education.
9. *Cultural Relevance and Diversity*: Recognizing and valuing diverse cultural perspectives and indigenous knowledge systems related to sustainability, and integrating them into educational content and practices.
10. *Assessment and Evaluation*: Develop appropriate assessment methods and criteria to measure teacher's outcomes related to sustainable development and inform continuous improvement efforts in teaching and curriculum design.
11. *Lifelong Learning and Continuing Education*: Promoting lifelong learning opportunities and continuing education programs for educators, students, and community members to deepen their understanding of sustainability issues and stay informed about emerging trends and best practices.

These factors interact dynamically and require concerted efforts from various stakeholders, including educators, policymakers, administrators, communities, and students, to effectively promote teaching and learning for sustainable development.

### Importance of Teaching and Learning for Sustainable Development

Teaching and learning play a crucial role in advancing sustainable development, and teachers are at the forefront of this endeavor. Here are several reasons why teaching and learning are important for sustainable development concerning Teachers:

1. *Creating Awareness*: Teachers have the opportunity to raise awareness about the importance of sustainable development, including issues such as environmental conservation, social equity, and economic development. By incorporating sustainability concepts into their curriculum, teachers can understand the interconnectedness of global challenges and the importance of taking action.

2. *Empowering Teachers:* Education is a powerful tool for empowering teachers to become agents of change. Teachers can equip the knowledge, skills, and values needed to address sustainability challenges in their communities and beyond. Through experiential learning activities and real-world projects, teachers can foster critical thinking, problem-solving, and collaboration skills essential for sustainable development.
3. *Promoting Responsible Citizenship:* Teachers play a key role in shaping the attitudes and behaviors of future generations. By instilling values of responsibility, empathy, and environmental stewardship in their students, teachers can help cultivate a culture of sustainability. This includes encouraging environmentally friendly practices, promoting social justice, and fostering a sense of global citizenship.
4. *Supporting Curriculum Integration:* Sustainable development is a multidisciplinary field that cuts across various subject areas, including science, social studies, economics, and ethics. Teachers can integrate sustainability concepts into their lessons across different subjects, providing students with a holistic understanding of the complex issues facing the world today. This interdisciplinary approach helps students make connections between different topics and develop a more comprehensive view of sustainability.
5. *Leading by Example:* Teachers serve as role models for their students, and their actions can inspire others to adopt sustainable practices. By incorporating sustainable practices into their teaching methods, such as reducing waste, conserving resources, and promoting alternative transportation methods, teachers demonstrate their commitment to sustainability and encourage students to follow suit.
6. *Advocating for Change:* Teachers can also play a role in advocating for policy changes and institutional reforms that support sustainable development. By participating in professional development opportunities, engaging in advocacy campaigns, and collaborating with policymakers and community stakeholders, teachers can amplify their impact and contribute to creating a more sustainable future for all.

## **Merit of Teaching and Learning for Sustainable Development**

Teaching and learning serve as foundational pillars for advancing sustainable development, with teachers playing a pivotal role in shaping own minds and actions. At the heart of this merit lies the power of education to cultivate awareness, empathy, and critical thinking. Through carefully crafted lesson plans and interactive activities, teachers have the opportunity to instill in their deep understanding of the interconnectedness of environmental, social, and economic issues. By fostering this awareness, teachers empower to recognize the importance of sustainable development in addressing pressing global challenges such as climate change, biodiversity loss, and social inequality.

Furthermore, teaching for sustainable development goes beyond simply imparting knowledge; it is about equipping teachers with the skills and values necessary to become active participants in creating a more sustainable world. Teachers develop problem-solving abilities, collaboration skills, and a sense of social responsibility. Through hands-on projects, debates, and community engagement initiatives, teachers take opportunities to apply their learning in real-world contexts, enabling them to become agents of positive change in their communities.

Moreover, the merit of teaching and learning for sustainable development lies in its ability to foster a sense of agency and empowerment among teachers. By nurturing a culture of inquiry and innovation in the classroom, teachers can encourage own question the status quo, explore alternative solutions, and advocate for meaningful action. This empowerment extends beyond the classroom walls, as students are inspired to take initiative and lead sustainability initiatives in their schools, neighborhoods, and beyond. In this way, teachers play a transformative role in shaping the attitudes and behaviors of future leaders, driving progress towards a more sustainable and equitable future for all.

## **Demerit of Teaching and Learning for Sustainable Development**

While teaching and learning for sustainable development undoubtedly hold numerous benefits, there are also

challenges and demerits that teachers may face in this endeavor. One notable demerit is the potential strain on already limited resources and curriculum constraints within educational systems. Integrating sustainability concepts into existing curriculum frameworks often requires additional time, resources, and training for teachers, who may already be stretched thin with their workload. This can lead to feelings of overwhelm and burnout among educators, particularly if they lack the necessary support and professional development opportunities to effectively incorporate sustainability into their teaching practices. The complex and interdisciplinary nature of sustainable development can present challenges for teachers in terms of curriculum design and implementation. Balancing the need to cover core subject areas with the integration of sustainability concepts may require significant creativity and flexibility on the part of teachers. Additionally, assessing student learning outcomes related to sustainability can be challenging, as traditional forms of assessment may not adequately capture the multifaceted nature of sustainability education.

Moreover, teaching for sustainable development may encounter resistance or skepticism from stakeholders within educational institutions or the broader community. Some may view sustainability education as politically motivated or controversial, leading to push back from parents, administrators, or policymakers. Addressing these concerns while maintaining academic rigor and neutrality can be a delicate balancing act for teachers, requiring strong communication skills and the ability to navigate potentially contentious issues in the classroom.

Lastly, the long-term impact of sustainability education on teacher's behavior and attitudes is not always immediately evident, which can be discouraging for teachers seeking tangible outcomes. While education is a powerful tool for empowering individuals to become agents of change, it may take time for teachers to internalize sustainability principles and translate them into meaningful action in their lives and communities.

### **Conclusion of Teaching and Learning for Sustainable Development**

In conclusion, teaching and learning are essential components of sustainable development, and teachers play

a vital role in preparing future generations to tackle the complex challenges facing the world today. By incorporating sustainability concepts into their curriculum, empowering students to take action, and leading by example, teachers can help build a more equitable, resilient, and sustainable world. Teaching and learning for sustainable development regarding teachers is multifaceted and profound. By fostering awareness, empowering students, and nurturing a sense of agency, teachers lay the groundwork for a generation of global citizens committed to creating a more sustainable world. In doing so, they not only educate minds but also inspire hearts, igniting a passion for positive change that has the potential to transform societies and safeguard the planet for future generations.

While teaching and learning for sustainable development offer numerous benefits, including empowering teachers to become responsible global citizens, there are also challenges and demerits that teachers may encounter. From resource constraints and curriculum challenges to resistance from stakeholders and the uncertain long-term impact on teacher behavior, addressing these obstacles requires dedication, creativity, and support from educational institutions and policymakers. Despite these challenges, the importance of integrating sustainability into education remains paramount, as it is essential for preparing future generations to address the complex environmental, social, and economic challenges facing our world.

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## FEATURE ARTICLE

## Role Of IGNOU in Teaching and Learning through Sustainable Development

Subheshwar Jha\*

### Abstract

*This article examines the pivotal role of the Indira Gandhi National Open University (IGNOU) in fostering teaching and learning practices aligned with sustainable development goals. IGNOU, as a pioneer in open and distance learning, has embraced the ethos of sustainability in its educational approach. Through innovative pedagogical strategies and curriculum design, IGNOU has been instrumental in raising awareness and building capacities for sustainable development among diverse learners. This article explores IGNOU's initiatives in integrating sustainability principles across disciplines, leveraging technology for inclusive education, and promoting community engagement for sustainable solutions. Drawing on examples from various programs and initiatives, the article highlights IGNOU's contributions to nurturing environmentally conscious and socially responsible learners who are equipped to address the complex challenges of our time. Moreover, it underscores the importance of collaborative partnerships and continuous innovation in advancing the agenda of teaching and learning for sustainable development.*

Key Words: Teaching, Learning, Sustainable Development, Distance Education, Curriculum Integration

### Introduction-

Education has always been considered a great force and it contributes to sustainable development and thereby being instrumental in development of a nation. Education affects progress in the social, economic, political and environmental spheres, which, in turn helps in alleviating the socio-economic condition of individuals and societies. It is so especially with respect to the field of education in sustainable development that transforms people to a higher level of understanding about the necessity of preserving

the resources and also do everything that prohibits the reckless use of resources of mother earth.

The word 'Sustainable Development' was coined in 1970's by Barbara Ward, the founder of the 'International Institute for Environment and Development'. Though almost after a decade and a half, the term became valid officially in 1987 by the 'United Nations World Commission on Environment and Development' or Brundtland Report (named after the Norwegian Prime Minister) Gro Harlem Brundtland. The conclusion of this declaration defines 'Development' as necessary to meet human needs as it was thought to be essential to improve the quality of life. It was also contemplated that it must happen without depleting the earth's resources to meet the current and future needs of people.

In today's world, the terms 'Sustainability' means a harmonious and meaningful coexistence of biosphere and humanity. After the Brundtland Declaration, the Rio Declaration came in 1992, which laid down 27 principles of sustainability. It declared an urgent need to achieve sustainability for the urgent need for protection of the environment which is being incessantly damaged due to anthropogenic interference. The principle of sustainable development propounded therein also talked about the need to live under the limits of consumption of natural resources.

The Rio Declaration of 1992 discussed and propounded 3 main points of sustainable development. Those are - economy, society and environment, and stated that all these three factors are interdependent and mutually reinforcing. Subsequently, great scientists and thinkers have also concluded that these three factors will have to be friendly to one another in order to ensure sustainable development of our world so as to make it safe and secure for our future generations.

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## Education

Now, before discussing the two issues of the importance of Teaching - learning for sustainable development and what role can IGNOU play in Teaching -learning for sustainable development, it is necessary to comprehend what teaching and learning is and how it can make a meaningful difference people's lives by sensitizing them about sustainable development and its implication to our society at large.

It is well understood that teaching and learning always takes place between teacher and taught during imparting and receiving education. The word 'Role' has an important meaning in this respect. As it is commonly understood, 'Role' means the way of executing any work. Education is a process of exchange of ideas and knowledge from teacher to the taught where teacher endeavours to develop the student's personality with creative thinking and sensitizing him to use that knowledge for the benefit of the society. It is also vice-versa in between society and education. Education enhances a human beings' creative abilities which will be necessary for the society, its economy, ethics and also culture. Education is always beneficial for society; it creates theories, process and rules for the application of knowledge for the betterment of society and also because it provides a higher understanding about knowledge and skills about even the dormant and trivial issues that are pre-requisites for development with right understanding and good perspective of physical and social environment.

Once Aristotle was asked what is the difference between an educated and an uneducated person. His reply was that educated means living and uneducated means a dead man. This statement proves the value of education for leading a meaningful life and it is what shapes quality of life. Of course, today it requires heavy outlay in creating qualitative human resource. The running period is of science and technology and it is fully based on creativity and innovation and these two aspects are directly related with education. Thus, education results in betterment of both society and science, in equal measures.

## Sustainability

In June 1992, in Rio de Janeiro in Brazil an important deliberation of United Nations Conference on Environment and Development (UNCED) took place. Its main agenda or mission was to attain sustainable development and to

address critical issues and challenges that the world is facing due to overpopulation and consequent over consumption and owing to it, the emergence of numerous supplementary problems that have led to serious problems like climate change, ozone depletion and species loss multiplying hindrances in the path of sustainable development and creating a distressing situation that is triggering a grave threat to economic development and is disturbing the ecological equilibrium of mother earth.

In order to maintain a sustainable development in these areas, it is a dire necessity to keep a synchronous balance or harmony among- exploitation of resources, direction of investment, orientation of technological development and institutional changes. Or else, the balance between the running human needs and future aspirations will be imbalanced and lead to catastrophe.

## Invoking Sustainable Development through Education

Prior to coining the word sustainable development, the conventional approach was seriously tilted towards economic development only and were oblivious about the consequences of the frivolous use of material things that only adds to the luxury of people but overlooking the environment. But today it's a great social challenge. Therefore, today, sustainability aims to do certain things like-

- Look after every aspects of biosphere for its smooth functioning.
- Save natural habitat, biodiversity and species of flora and fauna.
- Maintain the theory of sustainability during exploitation of resources of environment.
- Stop polluting and damaging the environment.
- Always follow high standard norms of environment protection.
- Create laws, policies, projects and technology for sustainability.
- Without doing late make people aware regarding harmful pollutants specially radioactive things.

So, appealing sustainable development through education means that one should acquire desirable knowledge, skills,

attitude and values required to create a sustainable future. The main aspects of education that point to the necessity to address issues that causes sustainable development, is related to climate change, disaster risk reduction, poverty reduction, biodiversity and sustainable consumption. Here, education enhances critical thinking, visualising futuristic situation and taking decisions in collaborative manner. Therefore, as the world is heading towards calamity at a neck-break speed, it is essential today to use education for making the people sensitive towards those problems with utmost urgency.

### **Aligning Education for Sustainable Development**

It is imperative that without education, sustainable development is not possible. It is because education promotes research and new information, which are necessary for sustainable development. Education causes qualitative understanding and empathy towards nature. In 2002, the UN meet in Johannesburg emphasized on the need for higher understanding through education as its key issue and urged all nations to work for it instantly. The Indian govt. actively responded and guided all the educational boards to include environmental education in their curriculum.

As it is seen, the Govt. of India is striving to promote sustainable development through education directly and is focussing to protect environment and enable people to opt such actions which should not damage our planet Earth. It is known that climate change and Environment degradation are depleting the flora and fauna of the whole earth with consequences being felt today globally. The forest fire, flood and global warming are just some examples to prove the point. It is due to this reason that UNESCO has outlined emphatically to integrate the principles, values and practice of sustainable development in all spheres of education and include all stake holders like- government and non-government organisation, civil society and general public for bringing sustainable development.

The education for sustainable development not only talks about environment but it also refers to the prevailing poverty, citizenship, peace, ethics, governance, justice, human rights, gender equality, natural resource management and biological diversity.

Hence, education for sustainable development must be prescribed for elementary, secondary and higher education as the need of the hour.

### **Role of IGNOU towards Sustainable Development**

The acronym IGNOU stands for Indira Gandhi National Open University. It was established in 1985 by an act of parliament. Its main mission was to provide education to all those, who are not getting education and today it is the largest university in the world. It is not only teaching-learning to Indian pupil rather it is also working beyond India. It's primary emphasis on innovation through learner centric approach with openness, flexibility, multiple entry and exit. Today, IGNOU is running 300 programs/ courses with 2.2 million students already admitted having 60 regional centres, 2500 study centres in India and 41 overseas centres. Owing to IGNOU's qualitative excellence, the 'Commonwealth of Learning' (Canada) has conferred it 'Certificate of Excellence'.

When UNESCO of UN declared the decade from 2005 to 2014 as the decade of education for sustainable development, IGNOU established a University level chair for promoting education for sustainable development in March 2007. This chair was dedicated to great agro-scientist Prof. M.S. Swaminathan. With this step, IGNOU affirmed its mission to involve people in sustainable activities instead of getting only awareness through teaching-learning in education. As part of this new initiative, IGNOU formulated various courses on environmental studies and also included sustainable practices in their process.

In this key initiative IGNOU also included eco-friendly activities in its courses. It concentrated on renewable energy like solar power for minimising carbon emission. It also focused on water harvesting and waste management for enhancing, reusing and recycling. The university went for research and outreach programs for creating awareness for participation in eco-friendly works for sustainable development. IGNOU also conducted seminars, workshops and training sessions for looking after climate change, conservation of biodiversity and waste management. The main features in these initiatives with regard to Sustainable Development also included environmental science, conservation of resources and sustainable development. This injected knowledge, skills and responsibility to

learners through teaching. IGNOU also collaborated with government agencies, NGOs and other institutions for making people aware about the importance of Sustainable Development and Environmental Conservation. Such endeavours of IGNOU not only remained inside the campus but it also moved into local communities and improved the livelihoods of people and they realised how to preserve the natural resources on which they depend.

It is very often said- before preaching others first you act. IGNOU also did the same. One important aspect is that IGNOU stopped its dependency on fossil fuels for meeting the energy needs inside its many regional centre campuses, stored rain water for irrigation, managed waste management and accelerated reusing and recycling. Thus, it made people eco conscious. The university provided financial fund and scholarships and grants to the students and researchers who were working for sustainable development. These steps served as classic examples of an educational institution which recognised the crisis of sustainable development and wanted to create a conscious society.

IGNOU brought together experts, researchers and practitioners of this field and discussed on environmental concerns/issues and from here the valuable insights, critical thinking and problem solving approaches germinated. These made people responsible towards environmentally sustainable development. It also collaborated with Ministry

of Environment, Forest and Climate Change of India. Next it collaborated with international organisations like United Nations Environment Program (UNEP) and UNESCO. These steps were used for global level work. Here, IGNOU conducted joint research for sustainable development .

These and many other steps taken by IGNOU, it is comprehensible that a university's primary objective should transcend beyond conventional teaching and tread on the path that guides the society towards a healthy, safe and secure life not only for the present generation, but also for the future of mankind. It is time to start a concerted effort by all agencies across the globe towards promoting sustainable development and curb the disturbances created by anthropogenic activities. IGNOU has shown the way and it is for all educational institutions to contribute actively to the cause that stares starkly on the future of humanity today. It is now or never. The choice is ours.

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## FEATURE ARTICLE

## Use, Importance and Widespread Contribution of Teaching-Learning Materials (TLM) in the Context of “Teaching and Learning for Sustainable Development

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### Abstract:

*Teaching materials or teaching and learning materials are resources that teachers can use in teaching and learning situations to facilitate the teaching and learning process and achieve the desired learning objectives. TLM is a collection of materials that help teachers support specific learning objectives in the classroom, develop or improve specific student skills, and, in some cases, make learning fun. TLM provides the conceptual foundation needed to make innovative and transformative educational decisions in areas such as admissions, instructional design and implementation, performance assessment, improvement, technology-assisted learning, diversity, equity, and TLM. The goal is to provide practical analysis and creative inspiration. This article elucidates the term TLM, explains its objectives, defines the main benefits of using it and the main types of these materials. It also describes the ways Educational Materials can be prepared and used for effective learning.*

Key Words: Teaching-learning Materials, Audio TLM, Visual TLM, Audio-Visual TLM.

### Introduction:

In education, “Teaching-learning Materials” (TLM in short) refers to a set of materials that teachers use in the classroom to support achievement of specific learning objectives of the lesson plan and comprises of a variety of materials that teachers use in the classroom to support the specific learning objectives of the lesson plan. This includes games, videos, flashcards, project materials, and more. Only 14% of Indian classrooms use learning resources other than textbooks. Most textbooks alone often do not extend educational guidance and cannot be designed to meet the learning needs of students. This often

leads to classrooms where lessons are limited to teacher monologues with little student participation.

To ensure that teaching is interesting and effective, the teaching guide, the mainstay of teaching, describes the material to be used in the class to support teaching of a particular subject. Daily learning objectives are thus the first key to engaging with TLM as they can significantly improve student performance by aiding learning. Educational videos that provide students with new knowledge, and engaging worksheets that enable ‘learning by doing’ for students provide new opportunities to practice new skills learned in class.

TLM can be broadly classified into three categories namely Audio TLM, Visual TLM and Audio-Visual TLM. A closer look at these sections indicates that TLM mainly stimulates the auditory senses of the students. Teachers go on daily investigative missions, trying to collect disparate materials such as textbooks and student workbooks.

### Understanding Teaching-Learning Content

As it is observed, the definition of teaching-learning content is very broad. The best Teaching-learning Material can be created based on scientific teaching principles and research methods, but teachers will use it only if they find it easier to use than existing alternatives. The format of teacher training manual should be light and easy to read. In some parts of the world, this is called teaching and learning support material (LTSM). This term has the same meaning as educational materials used in the classroom. These may include teacher-created resources, student-created resources, commercially created resources, textbooks, classroom reading materials and dictionaries. It also includes e-books, stationery, worksheets, and also Scientific equipment.

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The teaching-learning content is intended to include multiple sources. Therefore, the resources chosen for a particular activity will depend on the type of learning, the topic and what is available. Teaching-learning Materials include lectures, readings, textbooks, multimedia materials, and other resources. It is seen that with educational materials available, teachers can learn about new teaching methods available and improve their existing skills. Teaching-learning materials includes everything that teachers can use to facilitate students' learning. Ranging from low-tech to high-tech, teaching-learning materials are essential tools or children to learn and achieve their educational goals. Teaching-learning Material (TLM) helps teachers to improve their teaching and make classroom teaching more comprehensive and effective. We need to move away from traditional teaching methods where teachers lecture and students sit as listeners. These materials allow teachers to incorporate new technologies into their teaching, which can help students concentrate more in class.

As teachers have multiple responsibilities and are expected to balance complex social-emotional interactions in the classroom while achieving high cognitive outcomes, the academic content taught will vary from teacher to teacher, but will ultimately depend on how deeply the teacher understands the concept. Concepts are of utmost importance to become a reputed teacher. TLM in education is thus considered as teaching-learning component and connotes to reference materials so that teachers know how to facilitate the learning process of their students. In the long run, the theory is not important, but the concepts the teacher understands are more important. Thus, while teaching children to write, it is important to give some level of examples. In education, teaching-learning materials (often referred to as TLM) or instructional materials denote to the various teaching materials that teachers can use to teach and facilitate the learning process. These learning materials are used to support the learning objectives for all subjects. Research shows that a combination of motivated teachers and well-planned teaching that makes effective use of the available teaching and learning materials is key to making good progress.

The content of TLM may be human or non-human resources; it can also be living or non-living. With technological progress and scientific advancement, all specializations have evolved significantly. We should do

the same with education. With the help of visualization, students understand concepts better and faster. This ensures better communication, academic performance and participation in the classroom. Better communication means better dissemination of ideas.

## **Educational Materials and its Classification**

Educational materials can be classified on the basis of types. The best learning materials (including audio and visual resources) learning objectives, assessments, and activities, are aligned with all other curriculum components. Ideally, teaching and learning materials are developed for the user of the material, the students in the classroom, and the teacher. Teachers should choose audio-visual aids to make the classroom more effective and modern.

## **Purpose and Importance of Educational Material:**

### ***Students' Perspective –***

The purpose and importance of teaching and learning materials is to make lessons interesting, learning easy and enable teachers to easily express concepts. Learning materials can significantly increase learners' achievement by supporting learning. TLMs also makes learning real, practical and fun for children. Teachers use TLMs to illustrate or reinforce a skill, fact or idea. TLMs also help in bringing novelty and freshness in classroom teaching as it relieves learners from anxiety, fear and boredom.

As is observed, the Educational Material are created to help students to connect what is taught to real-life situations and helps in incorporating connections between course content and real-world examples and experiences and thereby encourages and helps students develop deeper content knowledge and critical thinking skills. It also enables students to learn throughout his life by cultivating a critical mindset. encouraging critical thinking through learning materials can help students become lifelong learners. Exposing them to a variety of viewpoints and ideas can spark their attention and curiosity, and their inner critic will have something to ponder for the rest of their lives. Besides, Learning materials allow all students to be active participants in the classroom, and moreover, the content provides immense opportunities for better learning.



**Teachers' Perspective:**

With regard to the teachers, TLM can help teachers to create learning opportunities for children by using teaching materials and teaching aids. The teachers thus promote independent and activity-based learning rather than merely imparting knowledge to children. Teaching-learning materials allow teachers to enhance the learning experience of their students. This is a deviation from the “chalk and talk” teaching approach, where the teacher essentially lectures the students. It is essential to understand and know the full scope of TLM in education to have a clear idea of how TLM can benefit the education sector.

Teaching-learning materials allow teachers to offer more interactive, interesting and engaging learning activities. These materials should be attractive to students. The lessons prepared by each teacher should include specific learning objectives based on the curriculum. An effective lesson plan also includes a clear and defined sequence of instructions that children must follow to achieve the stated objectives. As part of the continuous learning process, teachers create learning opportunities. The design and use of different shades makes TLM more attractive. Teachers should have a complete understanding of the full form of TLM in education and how it can help them. Printed educational materials may also be provided. Many teachers still prefer this teaching method because of its efficiency and traditional way of obtaining resources. The content should provide students with relevant knowledge. They should feel that their existing knowledge base has been enhanced through educational materials. With the help of teaching materials, teachers can concentrate more on their work. As a result, the learning environment in classroom will become better. A clear understanding of the full form of TLM in education will help teachers to recognize new teaching methods and navigate easily between different teaching methods. The presence of digital resources allows teachers to easily access educational content when requesting instruction or working on its implementation. Therefore, it is clear that the presence of a TLM has significant benefits for participating teachers. Although some may prefer teaching and learning materials in the form of digital resources, they can be distracting and not all teachers have access to these teaching and learning materials. Students should be able to use TLM to learn new ideas and concepts.

**Main Benefits of Using Different Study Materials:**

Using Different Study Materials has several benefits. It helps to make a teacher's content more understandable and clear. Teachers can save time by learning to explain lessons using audio and video. Using different study materials also help eliminate language related problems, makes lessons more interesting, improve understanding and promote better learning and makes communication between teachers and students more effective and meaningful.

**Teaching and Learning Resources:**

A teacher may use various kinds of material to substantiate learning and as it is said, imagination is the limit for such ascertaining the appropriate material to be used in the class. Generally, the teaching and learning resources used include digital learning resources such as video, audio, text, websites, animations and images, movies and TV, radio programs and podcasts, Social media and multimedia, applications, software, platforms and games. Conventional methods are also popular and are equally effective. This includes textbooks and novels, letter, drama and visual arts.

A quick look into the efficacy of some of these educational material would reveal the effect that it makes in enhancing the effectiveness of a class.

- i. *Audio Aid:* Audio helps students to remember concepts more easily and for longer periods of time. Sound aids educational materials or devices that stimulate the auditory senses and help us listen and learn, like radio broadcasts, cassette tapes, CD players, etc. useful for learning languages with emphasis on pronunciation. These assistive devices help children learn by stimulating their auditory senses. Young children find it interactive when songs and music are included in learning. Playing nursery rhymes and practicing the chorus will make class more engaging and fun for everyone. Audio material aids learning and facilitates memorization. Examples: Cassette player, tape player, radio and tape recorder.
- ii. *Visual Aid:* Visual content is a very important part of teaching material to help students visualize and provide better examples for future reference. These methods help in learning by stimulating the visual organs.

Lines, patterns, colourful images, and bright color can serve as visual aids. All of these visual aids help student's process information faster. This method also improves children's memory skills, virtually sharpens attention and improves learning. Examples include globes, whiteboards, maps, charts, modules, displays, illustrated cards, Power Point presentations, and graphs. Graphic organizers are charts and tools used to visually present and organize students' knowledge and ideas. Graphic organizers help students learn math and are also great tools for special education students and English learners. Visual materials are teaching tools designed for the entire class, such as posters that explain key site terms, classroom rules, important holidays, and important lesson ideas. However, they can also be used individually to help students, especially those who are visual learners or who have difficulty organizing their work or thoughts.

- iii. *Audio-Visual Aids:* Combining audio-visual aids can be beneficial when teaching material, as it not only helps in remembering concepts longer, but also provides students with better examples for the future and is more effective. Works properly. It is a combination of audiovisual media. These use students' auditory and visual senses to help them effectively understand educational videos, modules, animations and more. Example are LCD Projector, Television, Computer, Virtual Classroom etc.
- vi. *Video:* In today's digital age, there are many websites that offer free educational videos for children. Videos are becoming increasingly popular as a teaching/ learning material. When used correctly it can be a very powerful educational tool. The key to using video for learning is to motivate children to do something accordingly, whether it's recording new information or following step-by-step instructions. Videos provide tangible visual images that bring learning to life, but care must be taken when choosing videos that have real educational value. You can find more video lessons on YouTube channels.
- v. *Sports:* Games can help teach students everything from meaning and grammar to social skills. As a classroom teacher, one feels most satisfied when children learn without even realizing it. Sports are a great way to reinforce positive social skills like teamwork, sharing, taking turns, winning, and losing well. Outdoor games like basketball and kickball help students learn social skills like taking turns, sharing, teamwork, and being good losers or winners.
- vi. *Short Stories:* Teachers can read the book to the entire class and then ask students to write a short essay that summarizes the book and explains their ideas about the story. Storyboards are great educational materials. At the elementary school level, book reports provide a great way for students to interact with the books they have read individually or in class.
- vii. *Process:* Finger facts are especially useful for elementary students because they can be used to solve subtraction and addition problems. Manipulative are physical objects like blocks or marbles that help students learn.
- viii. *Flash card:* Printing high-frequency words, also called sight words, with simple definitions on the front of the cards makes them a great teaching tool for students with auditory or visual learning styles. Even in the age of computers and Internet-based educational materials, flashcards are especially useful for students with learning disabilities such as dyslexia.
- ix. *Clay Model:* Teachers have been known to use model clay to teach plate tectonics, a theory about how the Earth's surface behaves. The lower grades, from kindergarten to third grade, can learn using clay models. For example, teachers might ask young students to create letters using clay. You can also use clay to teach concepts to older students.
- x. *Overhead Projector:* Better than white boards or white boards with projectors, transparencies allow teachers and students to write numbers, create problems, circle or highlight features, and use paper towels or tissues. By using this you can easily erase the marks. In this modern age, we must not forget the value of traditional public transparency. Teachers can use clear projectors to teach skills such as counting to 100, or to demonstrate how charts and graphs work.
- xi. *Computer Programs and Applications:* Computer based interactive programs help language learners learn grammar and other elements of the language. Additionally, apps for tablets and smart phones provide instruction on everything from foreign languages and

Common Core information to college-level lectures and lessons for students. There are many educational computer programs available online which also could be used as Teaching-learning materials.

### Preparation of Educational Materials:

Before the content is developed, the teacher must know who his students are, what they need to learn, and how they will use the content. There must be detailed information about important things and based on the same, the illustration should be realistic, a reasonable amount of detail is required, background and unnecessary details are to be removed and photos with depth need to be removed. Needs analysis must also be done to identify gaps between students' current and desired knowledge, skills and attitudes. If the training content is not engaging, participants will soon lose interest and the entire session will be a waste of time.

### Training the Teachers

Enhancing teachers' competence to effectively use the TLMs becomes imperative in this context. It is widely appreciated that teachers must be continually trained to be able to use TLMs appropriately in the classes. However, it is necessary to define and specify the training goals and objectives so that training could be better adapted to the needs of students. This not only makes your training sessions more productive, but also helps the audience get the most out of them. The following steps could be taken in this regard.

- i. *Set Your Training Goals:* One must ascertain What are the goals?, What is one trying to achieve?, What did students notice? And What benefits did students receive? Taking the time to answer these questions will help you develop clear and concise training objectives. This will undoubtedly be a successful learning experience for all participants.
- ii. *Audience:* Understanding the audience is important to creating effective training content. By taking into account who you're talking to and what they know, you can create useful and engaging content. It would be necessary to know who will attend the session? What are your needs and expectations? When developing training materials, it is essential to know your audience. By understanding who the teacher is speaking to, he can make the content more engaging and relevant. This will be a good learning experience for the students. It is also important to consider the audience's level of knowledge about the topic being taught. When presenting complex data, you need to provide enough basic information for everyone to understand. On the other hand, if basic concepts are taught, less details are needed.
- iii. *Contents:* When choosing content, one must consider the needs and experience level of the audience. When preparing for the training session, the teacher must make sure that the content is accurate and organized. He must also make sure that the content is meaningful to participants and that they learn something new. If one is instructing a group of beginners, he must focus on the basics and move on to more advanced topics. Once he identified the right content, it's time to start creating engaging training content.
- iv. *Planning:* When creating training materials, one should consider the format in which they will be presented as an important part of the content. This helps organize a great content. There are many different formats, each with advantages and disadvantages. This includes
  - i) the element of Interactivity which means that training for technical courses like 3D modeling can be delivered through interactive tutorials. Incorporating activities and exercises into your presentation can help your audience learn and remember information.
  - ii) The second element is the mode of delivery i.e. whether the training will be in-person or online?
  - iii) The third element is to decide whether it would be Text-based or not. Text-based content can be very difficult and boring to read, so it's important to add images or use other techniques to keep participants interested. Text-based materials are versatile and can be used in a variety of settings. It is easy to update and change, making it suitable for last-minute changes.
- v. *Media:* Images, audio clips, and other multimedia elements can be used to enhance understanding.
- vi. *Length:* The amount of material that can be covered within a specific time period.

Students should modify the materials to suit their needs and create interesting and useful presentations.

## Nine Training/Learning Methods One Can Adopt:

There is no one-size-fits-all solution when it comes to finding the right training method for teaching. What works for students in American classrooms may not work for students in India. However, some training techniques are common and widely accepted and should be adapted to meet the needs of your students. When developing training materials, it is essential to consider the elements that make them more interactive and effective for learners.

### The Nine Possible Ways:

The nine possible ways in this context are enumerated below.

- i. *Intelligence:* The important thing to remember when brainstorming with students is how to do it effectively. Brainstorming is a collaborative process, so it's important that students feel comfortable sharing their ideas. Brainstorming is a powerful technique that can be used in many ways in the classroom. Helps students generate new ideas, organize their thoughts and develop writing skills. Brainstorming can also help you prepare for exams and presentations.
  - a) Here are some suggestions for preparing your students intellectually:
  - b) Students should be taught how to think effectively, generate ideas, synthesize them, organize them, and evaluate them.
  - c) Make sure students understand the purpose of intelligence.
  - d) Help students listen carefully to others and form their own ideas.
  - e) Explain that there are no wrong answers and welcome everyone's ideas.
- ii. *Collaborative Learning:* There are several things one can do to prepare students for collaborative learning. First, one needs a collaborative learning model. One should show students how to work together to achieve a common goal. Next, one must make sure your classroom is set up for collaborative learning. This means that students need enough desks or tables to work together and space to move around. Cooperative learning is an educational method that encourages students to work together to achieve a common goal. It can be used in any field and is especially useful for students who have difficulty with traditional teaching methods. Cooperative learning also helps improve social skills and teamwork.
- iii. *Modeling/ Rendering:* In the classroom, it is helpful to see how students do something before asking them to do it. Seeing others successfully complete a task gives students confidence in their abilities. One of the most important aspects of learning is the ability to observe and understand how processes work. Modeling or demonstration is one way to provide this understanding. This is especially true for new or unfamiliar activities. When creating mockups and demos, it is important to be clear and concise. The steps should be clear and easy to understand. This is also great for making sure the model and screen are correct. There are many ways to model or represent a process. Common techniques include pictures, diagrams, videos, or step-by-step instructions. 3D modeling and 3D printing are also available. For example, to illustrate the human heart, teachers can design and print a 3D heart prototype in 3D modeling software. When students engage in all these processes, they will gain a deeper understanding of the concepts.
- iv. *Use of Case Studies:* Through case studies, teachers can help students and staff learn in a fun and engaging way. Case studies can provide real-life examples of how the concepts taught are applied. Using case studies as a training method can be an effective way to support student and staff learning. Helps develop problem-solving and critical thinking skills. When using case studies in a training environment, it is important to ensure that the case is relevant to the audience and provides enough information for participants to analyze the situation. It is also ideal to allow time for discussion so that participants can share their ideas.
- v. *Role Playing:* Role playing helps students develop problem-solving, communication and teamwork skills. Furthermore, it can enhance creativity and imagination. Role-playing is a teaching method that encourages students to think critically and creatively. It allows you to pretend to be someone else and explore new ideas and concepts. This type of learning



is especially beneficial for children who are shy or reluctant to speak in public. There are many types of role-playing games, including board games, card games, and video games. Popular role-playing games include Dungeons & Dragons, Pathfinder, and Star Wars: Age of the Empire. These games allow players to create characters and interact with each other in a virtual world.

vi. *Use of Interactive Tutorials:* Interactive tutorials are a great way to help students learn. It can be used to teach a variety of subjects and can be customized to meet the needs of each student. A variety of interactive tutorials are available online. Some require prior knowledge, while others are more suitable for beginners. It is important to find the right educational program for each student and make sure it suits their individual learning style. It's important to find interactive tutorials that are a good fit for all of your students. If students do not understand a particular concept, they can ask the teacher for help. Interactive tutorials are a great way to learn, but they should not be used in place of traditional learning. Rather it should be used as a supplement to traditional training. Interactive tutorials are a great way to learn 3D modeling. 3D Printing Technology As 3D printing technology becomes more widespread in many schools, teachers and students are discovering how to create 3D models and 3D print them. However, the limiting factor is that most of the 3D modeling software available is complex or expensive. 3D design software makes it easy for students to learn how to create their own models. Interactive tutorials make the process easier for both teachers and students.

vii. *Use of Movies and Video Clips:* For students, movies and videos can help them learn more about the subject they are studying. This helps employees learn new skills or improve existing skills. Movies and videos are a great way to learn new information. It can be used both academically and professionally. Through videos, you can train your employees on how to do their job correctly. There are some important things to keep in mind when preparing films and videos for training. For example:-

i) Make sure the video is in the correct format for training purposes. This will help ensure that it

works properly and achieves the desired results. For example, videos should be in a standard format that can be opened on different devices. Also keep in mind that the video should not be too big.

ii) Make sure your video is clear and easy to understand. This ensures that your audience understands your content.

iii) Make sure your video is interesting and engaging. This helps keep viewers' attention focused on your video.

viii. *Conceptual Mapping:* Concept maps can be created before a lesson to help students understand the material or during class as a teaching tool. Concept maps are a visual representation of the relationships between ideas and concepts. Helps students learn new material, organize their thoughts, and solve problems.

ix. *Peer Learning:* Although peer tutoring is often offered in high schools and colleges, it can be adapted to suit students of all ages. Peer tutoring can be a very rewarding experience for students, but it is important to prepare them beforehand. Peer tutoring is an extremely useful tool for students of all ages. Not only does this give students the opportunity to get support from their peers, but it also gives them a chance to develop important skills like leadership and communication.

### **Check Out the Tips Below On How To Do This:**

Teach students to give and receive feedback effectively. This ensures that everyone involved in the process benefits.

Make sure students understand what peer tutoring involves. They should understand that they are helping their classmates learn, not teaching them.

Encourage students to ask questions and provide feedback. It is an important part of the teaching process and is beneficial for both students and teachers.

### **Conclusion:**

A high quality TLM follows key design principles that ensure effective use in the classroom. Unfortunately, even where TLMs exist, their usefulness is diminished



by unfamiliar content, standardized difficulty, and lack of connection to prior school material. Teaching in a classroom with a single teacher, perhaps writing on a whiteboard or blackboard, is a classic example of not using TLM. Well-equipped classrooms have a personalized element for both teachers and students. The use of TLM can be very beneficial in the learning process of students. A well-designed TLM with ongoing training and support enables teachers to succeed in the classroom every day and improve learning outcomes for all children. To use TLMs in practice, it is important to design them according to best practices and scientific evidence, and TLMs are essential “tools” to improve learning.

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## FEATURE ARTICLE

## Role of Collaborative Learning in the Modern Digital Era

Dr. R. Deenesh Kumar\*

### Abstract:

*In today's rapidly evolving digital landscape, collaborative learning stands as a cornerstone in educational paradigms. This article explores the pivotal role of collaborative learning methodologies in the context of the modern digital era. Through a synthesis of theoretical frameworks and practical applications, it examines how collaborative learning fosters engagement, critical thinking, and knowledge construction among learners.*

*The article delves into the theoretical underpinnings of collaborative learning, drawing from constructivist perspectives and sociocultural theories. It discusses how collaborative learning environments facilitate active participation, social interaction, and knowledge co-construction, thereby enhancing the learning experience. Moreover, it analyses the affordances of digital technologies in enabling and enriching collaborative learning experiences, ranging from online platforms to virtual reality simulations.*

*Furthermore, the article highlights the benefits of collaborative learning in preparing learners for the demands of the digital age. It explores how collaborative learning cultivates essential skills such as communication, teamwork, and digital literacy, which are increasingly vital in today's interconnected and technology-driven world. Additionally, it examines the role of collaborative learning in promoting inclusivity, diversity, and global citizenship by facilitating cross-cultural exchanges and collaborative problem-solving.*

*The article illustrates innovative approaches to integrating collaborative learning in diverse educational settings. It showcases best practices, challenges, and future directions for leveraging collaborative learning in the modern digital era. Finally, it emphasizes the need for educators, policymakers, and stakeholders to harness the potential of*

*collaborative learning to foster deeper learning experiences and prepare learners for success in an ever-evolving digital landscape.*

Key Words: Collaborative Learning, Modern Digital Era, Education Technology, Constructivism, Digital Literacy

### Introduction:

“Collaborative Learning is an umbrella term for a variety of educational approaches involving joint of intellectual effort by students, or students and teachers together. In most collaborative learning situations students are working in groups of two or more, mutually searching for understanding, solutions, or meanings, or creating a product. There is wide variability in collaborative learning activities, but most centre on the student's exploration or application of the course material, not simply the teacher's presentation or explication of it. Everyone in the class is participating, working as partners or in small groups. Questions, problems, or the challenge to create something drive the group activity. Learning unfolds in the most public of ways. Collaborative learning represents a significant shift away from the typical teacher-centered or lecture-centered.

### Collaborative Learning:

The word “Collaboration” brings together the Latin word “COL” meaning “with or together”. The Latin word “Labour” or toil. Collaborative learning holds enormous promise for improving student learning. Collaborative learning takes on a variety of forms and is practiced by teachers of different disciplinary backgrounds and teaching traditions, the field is tied together by a number of important assumptions about learners and the learning process. To learn new information, ideas, or skills, students have to work actively with them in purposeful

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ways. In collaborative learning situations, students are not simply taking in new information or ideas. They are creating something new with the information and ideas. Collaborative Learning in enhancing drill and practice skills and critical thinking.

Gerlach said that “Collaborative learning is based on the idea that learning is a naturally social act in which the participants talk among themselves. It is through the talk that learning occurs.” In collaborative learning the students have a common goal. They are working with each other to mutually search for understanding, finding a solution to a problem, creating a product. Here the teacher becomes a facilitator of learning. The students teach each other, they teach the teacher and the teacher teaches the students. Here students become partners of the learning process, as the teacher and students are equal participants teaching each other and learning each other.

### **Learning has Affective and Subjective Dimensions:**

Collaborative tasks build connections between learners and ideas and between students and teachers. Listening to and acknowledging diverse perspectives, working in a cooperative spirit, becoming a peer teacher or a peer learner—all these activities are socially involving, as well as emotionally demanding. In collaborative learning situations, students generally experience a shift in their intellectual development as they learn to articulate their own point of view and listen to the views of others.

### **Goals for Education:**

Collaborative learning helps students learn more effectively, many of them also place a high premium on teaching strategies that go beyond mere mastery of content and ideas; they believe that collaborative learning promotes a larger educational agenda. Still, there isn't just one rationale for collaborative learning, but rather several intertwined rationales. Moreover, collaborative learning has involvement, co-operation and team work and community responsibility as the educational goals.

#### **i. Involvement:**

Today's students are increasingly diverse in terms of background, prior experience, skills, and goals. It invites

students to build closer connections to other students, to their faculty, to their courses, and to their learning.

#### **ii. Cooperation and Team-Work:**

In collaborative, students inevitably encounter difference and must grapple with recognizing and working with it. Building the capacities for tolerating or resolving differences, for building agreement that honours all the voices in a group, for caring how others are doing—these abilities are crucial aspects of living in a community. Collaborative learning represents a new and different value systems, one that regards teamwork, cooperation, and community.

#### **iii. Community Responsibility:**

Community responsibility as an educational goal refers to the emphasis placed on fostering in students a sense of duty, engagement, and accountability towards their communities. It involves instilling values and skills that encourage students to actively participate in and contribute to the well-being and improvement of the communities. Uniting community responsibility is imperative for nurturing well-rounded individuals who understand their role in society and actively contribute to its betterment. By integrating community responsibility into educational goals, schools can empower students to become active, compassionate, and socially conscious members of society who strive to make a positive difference in their communities and beyond.

### **Collaborative Learning Approaches:**

Collaborative learning approaches are educational methodologies that emphasize active participation, interaction, and cooperation among students. These approaches promote peer-to-peer learning, problem-solving, and the development of interpersonal skills. Collaborative learning covers a broad territory of approaches, and there is wide variability in the amount of in-class or out-of-class time build around group work. Collaborative activities can range from approaches, such as Guided Design and peer writing, evolved in a particular discipline and then spread to others. Others, such as seminars, peers teaching, and cooperative learning, have been used in many disciplines. Learning communities are a structural approach to curriculum reform that embraces multiple courses or disciplines.

## Fundamental Elements in Collaborative Learning:

The fundamental Elements in Collaborative Learning: include Group Dynamics which signifies understanding the dynamics of group interactions, including communication patterns, roles, and norms, is crucial for effective collaborative learning. The second element in this respect is the Shared Goal which means establishing clear, common objectives helps align individual efforts and fosters a sense of collective responsibility and purpose among learners.

The other important elements in Collaborative Learning include interdependence which means encouraging interdependence among learners to promote collaboration by emphasizing the mutual reliance and contributions needed to achieve shared goal, active engagement from all participants for collaborative learning to thrive, facilitating knowledge sharing, critical thinking, and problem-solving and reflection and feedback.

In addition, collaborative learning also entails active engagement among participants fosters a dynamic exchange of ideas, perspectives, and insights, driving deeper understanding and learning, leveraging social interactions and peer-to-peer communication enhances knowledge construction through dialogue, debate, and collaborative problem-solving and encouraging shared ownership of learning goals and outcomes promotes accountability, cooperation, and mutual support among participants.

Besides diverse perspectives including embracing diversity of backgrounds, experiences, and expertise enriches collaborative learning environments, facilitating broader perspectives and innovative solutions and reflective Practices integrating opportunities for reflection, self-assessment, and feedback empowers learners to critically evaluate their own understanding, refine their thinking, and enhance their learning process iteratively are also essential for Collaborative Learning.

Studies indicate that collaborative learning lead to development of higher level thinking skills, increases student retention, builds self-esteem in students and develops oral communication skills. It also results in enhancing self-management skills and encourage the student's responsibility for learning. It is also observed that collaborative learning promotes student—faculty

interaction and familiarity and results in promoting a positive attitude toward the subject matter.

## Four Principles of Collaborative Learning:

Realizing the importance of four pillars of collaborative learning is important in this context. These four pillars are enumerated below.

- **Equal Participation:** Encourage all participants to contribute actively to the learning process, ensuring that everyone's perspectives and insights are valued and heard.
- **Promotion of Interaction:** Create opportunities for meaningful interaction among learners, such as through discussions, debates, and group activities, to facilitate knowledge sharing and peer learning.
- **Shared Goals and Responsibilities:** Establish common objectives and tasks that require collaboration, fostering a sense of collective ownership and accountability among participants.
- **Reflection and Feedback:** Incorporate mechanisms for reflection on group processes and outcomes, as well as providing constructive feedback, to facilitate continuous improvement and enhance the effectiveness of collaborative learning experiences.

By incorporating these principles into collaborative learning activities, educators can create a supportive and engaging learning environment where students learn from one another, develop important life skills, and achieve better learning outcomes.

## Technology and Collaborative Learning:

Technology has become an important factor in collaborative learning. Over the past ten years, the Internet has allowed for a shared space for groups to communicate. Virtual environments have been critical to allowing people to communicate long-distances but still feel like they are part of the group. Research has been conducted on how technology has helped increase the potential of collaborative learning. There has been a development of new technology that support collaborative learning in higher education and the workplace. Two of these principles, especially important in developing technology for collaboration are a) Good practice develops reciprocity

and cooperation among students and b) Good practice uses active learning techniques.

### **Collaborative Networked Learning:**

According to Findley (1987) “Collaborative Networked Learning (CNL) is that learning which occurs via electronic dialogue between self-directed co-learners and learners and experts. Learners share a common purpose, depend upon each other and are accountable to each other for their success. CNL occurs in interactive groups in which participants actively communicate and negotiate learning with one another within a contextual framework which may be facilitated by an online coach, mentor or group leader. Computer-supported collaborative learning (CSCL) is a relatively new educational paradigm within collaborative learning which uses technology in a learning context. CSCL systems use technology to control and monitor interactions, to regulate tasks, rules, and roles, and to mediate the acquisition of new knowledge.

### **Collaborative Learning Using Wikipedia:**

Wikipedia is an example of how collaborative learning tools have been extremely beneficial in both the classroom and workplace setting. They are able to change based on how groups think and are able to form into a coherent idea based on the needs of the Wikipedia user.

Collaborative learning in virtual worlds virtual worlds by their nature provide an excellent opportunity for collaborative learning. At first learning in virtual worlds was restricted to classroom meetings and lectures, similar to their counterparts in real life. Now collaborative learning is evolving as companies starting to take advantage of unique features offered by virtual world spaces – such as ability to record and map the flow of ideas, use 3D models and virtual worlds mind mapping tools.

### **Collaborative Learning and its Effect:**

Like all concepts, collaborative learning is also not without its own advantages as well as disadvantages. Collaborative learning, when implemented effectively, can have several positive effects on students’ academic achievement, cognitive development, social skills, and overall learning experience. Collaborative learning has been observed to promote dialogue between learners. It also develops oral

communication skills in face- to-face learning, written communication skills in online learning, leadership skills, self-management skills, and is a preparation for real life social and employment situations. It makes the students a active learners.

There are shortcomings also in Collaborative Learning. Out of many drawbacks the primary disadvantages is the frustration in the collaborative learning experiences may affect motivation and engagement of students as it is discerned that the success of collaborative learning depends upon the cohesion of all variables that work together to constitute Collaborative Learning. It is seen that in many situation such cohesion is hard to find. Lastly, it is often difficult to sustain the spirit of collaboration in any learning initiatives in organizations.

### **Teachers Role in Collaborative Learning:**

It has been established in no uncertain terms that Teachers play a significant role in collaborative learning. The principal roles played by teachers in collaborative learning are described below.

- **Facilitator:** The teacher plays a crucial role in facilitating collaborative learning experiences by structuring activities, guiding discussions, and providing resources to support learners’ engagement and interaction.
- **Promoter of Collaboration:** Teachers encourage collaboration among students by fostering a supportive and inclusive learning environment, promoting teamwork, and emphasizing the value of collective problem-solving and knowledge construction.
- **Resource Provider:** Teachers offer resources, materials, and tools that facilitate collaborative learning, including technology platforms, instructional materials, and access to relevant information sources.
- **Mediator:** In collaborative learning settings, teachers serve as mediators to resolve conflicts, address misunderstandings, and ensure equitable participation among learners, promoting a positive and constructive group dynamic.
- **Evaluator:** Teachers assess individual and group progress, provide feedback on collaborative activities, and evaluate learning outcomes, guiding students in



reflecting on their contributions and identifying areas for improvement.

### **Conclusion:**

In collaborative learning the students have been working in groups. The students learn different methods of learning. Though they are in groups they learn many things from one another. Through this learning method the students learn many. This method improves their thinking skills, builds self-esteem, develops oral communication it makes students to learn the concept easily.

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## FEATURE ARTICLE

## Education for a Sustainable Earth

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**Abstract**

*“Development that meets the prerequisites of the present without jeopardizing the ability of next generations to fulfill their needs” is one definition concerning sustainable development found in the 1987 Brundtland Report, “Our Common Future,” published by the United Nations World Commission on Environment and Development. Now it has become widely acknowledged, this concept of sustainable development appears to be a comprehensive one. As the definition states, growth cannot take place in addition to the cost of the earth’s ability to sustain human needs and raise standards of living, even though it might be required to do so. Growing concern over human influence and unnecessary interference with our natural environment led to the idea of sustainable development, or SD. The United Nations Environment Conference and Development sometimes referred to as the Planet Summit, held discussions in 1992 and reaffirmed its commitment to advancing the three bases of environmentally friendly growth—the environment, society, and economy—as interrelated and mutually supporting ideas. These sectors, or pillars, must collaborate to accomplish SD. The environmental, social, and economic spheres are all interconnected and extremely significant. A thriving, healthy community depends on a clean environment to give its members access to resources, food, wholesome water for drinking, and air. A concept of sustainability that safeguards future generations’ interests as well as the planet’s capacity to support us without any damage to it.*

Keywords: Development, Sustainability, environment, generations, safeguard, interference.

**Introduction**

Sustainability in the twenty-first century broadly speaks of the capacity of the ecosystem and human civilization to

coexist and develop in a positive direction. The 1992 Rio Environmental and Development Declaration included 27 sustainability tenets. The Declaration, which declares that keeping the environment safe must be a primary component of development and cannot be taken into consideration separately to achieve sustainable development, is one example of that kind of principle. Achieving sustainable growth as well as satisfying the requirements of the majority of people requires eradicating the differences in living conditions around the globe. The term “sustainable development” refers to long-term, environmentally benign development projects that don’t harm the environment. Respecting the boundaries of natural mineral use of available resources is among the main tenets of sustainable development. Therefore, sustainability must be the defining principle for all economic and social development goals, whether they are market-oriented or centrally controlled, in industrialized or developing nations.

Humanity has always existed in a condition of constant development. However, sustainable development unquestionably has an all-encompassing focus on future development. A future where social, economic, and environmental factors are balanced in the name of advancement and higher living standards is intended to be imagined by the meaning of sustainability. The economy, the environment, and society are all interconnected. To supply its people with fresh air, potable water, and food, a wealthy civilization must maintain a healthy environment. The paradigm shift from economic development, which adversely affected society and the environment, to sustainability is significant. Before recently, these outcomes were perceived as expected and reasonable. Nonetheless, we now understand that the sustainability paradigm cannot accommodate significant harm or grave

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dangers to human and environmental well-being in the name of economic growth. The global catastrophe brought on by the COVID-19 pandemic offers a remarkable chance for rethinking and reconstruction. Academic institutions—colleges, universities, or schools—must work twice as hard to guarantee access to the global leaders and policymakers’ knowledge they need to address the more complicated developmental issues.

## Principles of Sustainable Development

Moreover to take into account an underlying cultural component, all sustainable undertakings involving development must consider the three pillars of sustainability: the environment, society, and economics. There is anticipated to be a wide variety of sustainable development practices worldwide since it takes into account the regional settings of these three domains. Sustainable development is based on ideals and ideas that include social justice, environmental preservation and restoration, peace, tolerance, gender equity, parity among generations, and poverty reduction.

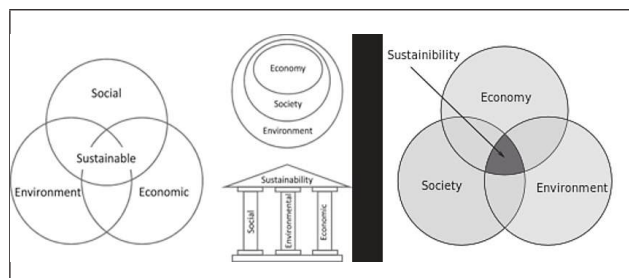


Fig-1: Components of Sustainable Development

## Education and Sustainable Development

A powerful tool to bring about changes in human civilization is education. It is necessary for the advancement and change of society. Education is seen as a powerful factor supporting sustainable growth and national development. It is needed for all forms of development—political, social, economic, and environmental. Education encourages the growth of the information and abilities needed to accomplish sustainable development (SD). It supports the advancement of democratic ideals, social justice, economic prosperity, and many other things. Using Sustainable Development Education (ESD), individuals and communities can find out how to protect the planet’s finite resources. By taking a balanced and integrated method of approaching the

economic, social, and environmental aspects of SD, the ESD seeks to enable both current and upcoming generations to have their requirements. As it ought to be mentioned to promote sustainable development (SD) prioritizes the acquisition of the knowledge, abilities, attitudes, skills and behaviors needed to build a sustainable society that upholds social justice, environmental preservation, and economic prosperity. There is a direct correlation between education and sustainability, and the degree and caliber of education that fosters sustainable development determine a sustainable future. Through promoting critical thinking and problem-solving abilities, ethical and responsible behavior, and awareness-raising, the role that education plays in making the world more sustainable. “A key part of the worldwide structure for holistically sustainable growth goals is education.” Our attempts to both evolve with the times and revolutionize the environment wherein we reside are fundamentally based on education. Irina Bokova, the director general of UNESCO once stated “A high-quality basic education is the essential foundation for lifelong learning in a complex and rapidly changing world.”

Curriculum reorientation to address sustainability can occur at the national or classroom level. In the classroom, educators can start by clearly stating how the subject covered in the required curriculum relates to sustainability. As an illustration: We are studying World War II today. As you are aware, war is regarded as an unsustainable situation when resources are spent and lives are lost. The idea that conflict is fundamentally harmful to sustainable growth is a tenet of sustainability. Why, in your opinion, do conflicts impede nations’ efforts to move toward sustainability? (For instance, public income is used to destroy humankind rather than to promote human well-being). We all know about the health dangers associated with dirty water, and polluted air today. Nowadays, it is believed that every person is entitled to access water, and establishing sustainable communities depends on upholding human rights. We are discussing international trade today. Consider the origin of the fiber in the shirt you are wearing, the manufacturing location of the fabric, the sewing location, and the method of delivery. What level of work went into that? What is your shirt’s carbon footprint? What does your shirt have to do with resource sustainability? Students’ concepts will grow and knowledge of sustainability from basic statements like these simple and relevant examples. Numerous resources have been created to help refocus a curriculum on

sustainability. Analyzing it is feasible to incorporate ESD to a certain extent in national and educational curricula by using it. Eight activities are included in the Sustainable Development Education Toolkit, this can be used to change the emphasis of a curriculum to sustainability and organize community forums to get feedback on proposed changes.

## Education for Sustainable Development

To integrate the three major components of sustainability, i.e. Social, economic, and environmental the total amount of sustainability taught and the duration the students spend on tasks (i.e., learning about sustainability) can be significant throughout a school year. In ministries of education that write the required curricula, the reorientation procedure could also occur at the federal, provincial, or state levels. A teacher working alone or with a small team of instructors in a school should not undertake a reorientation process; instead, a national or provincial process should be carried out more methodically and fully. A holistic approach at the federal or state level would involve requesting relevant stakeholders to participate in the whole process. Learning communities must recognize and incorporate the knowledge, concerns, viewpoints, abilities, and values that are essential to sustainable development in the environment, society, and economy—the three pillars of sustainability—into curricula to reorient them to address sustainability. Selecting which of the numerous sustainability challenges currently in existence—such as poverty, inequality, climate change, and biodiversity—will be covered in the curriculum is another task facing the education sector. Education reform initiatives should ideally be grounded in regional or national sustainability objectives. The local environmental, social, and economic factors will be covered in a suitably reoriented curriculum to guarantee that it is both culturally and regionally relevant. Nations have imported curricula from other areas or nations in an attempt to save time or resources. Regarding ESD, this is unsuitable since local contexts and national and local sustainability goals won't be properly targeted. To address issues with sustainable development that result from human decision-making, education for sustainable development encourages research and knowledge dissemination. A significant contributor to Education is key to sustainable development, and it can be considered as an investment in human resources. Read on to learn more about them: Sustainable society is supported and encouraged by ESD. To achieve a more sustainable

society, high-quality education is a crucial component and tool. A significant part of changing our habits and lives is teaching for long-term growth. The process of education is regarded as teaching us how to decide on actions that will have an impact on our lives both now and down the road.

It acted as a well-observed fact that long-term health, social well-being, and economic stability are at stake. All living communities are in danger because of unplanned and haphazard there is constant evolution occurring in the world. Education for sustainability places a strong emphasis on developing the ability for forward-looking thinking regarding this menace. It slightly improves pupils' comprehension of the surroundings in which they live, learn, and play. It gives them the aptness to deal with the intricate issues that threaten our future, including gender inequality, health, abuse of human rights, urban deterioration, poverty, illiteracy, and environmental degradation. The evolution of information and skills necessary for a sustainable future, also modifications to values, conduct, and lifestyles, are emphasized in this educational vision through an all-encompassing, integrated, and multidisciplinary approach. To address and resolve the environmental issues that endanger people's lives, we must redirect educational curriculum to programs, policies, and practices that will enable people—especially young people—to make decisions and take appropriate, culturally- and locally-relevant action. This makes it possible for individuals of all ages to formulate and assess a different vision for a sustainable future, and to realize this vision by collaborating imaginatively with others. As a result, a country's ability to establish and meet sustainability goals depends on its basic education system. Basic education can raise living standards generally, boost women's status, slow down population growth, safeguard the environment, and increase agricultural output. The epidemic has made it very clear that any advancement in human society must prioritize sustainability.

Fundamentally, education is a process that shapes people's capacities and develops skills, social context, economic advancement, moral environment, and most importantly, cultural flexibility. Educational theories, practices, and standards for applying knowledge that could be advantageous to society are anticipated to change over time. Knowledge and abilities for tackling development-related difficulties are also anticipated. Furthermore, it must facilitate the growth of individuals' and pupils'

perspectives along with comprehension of the social and physical environments along with thinking for a safe and secure future. There is a general feeling that, in light of present global changes occurring, the planet we leave for our kids and grandkids might not be a better one because of environmental damage brought on by today's both governmental and financial choices. It is extremely concerning to think that those who benefit from economic growth now can be negatively affecting future generations by severely depleting natural resources and contaminating the environment.

It's widely acknowledged that education is a powerful factor supporting sustainable and national growth. Either social, economic, political, or environmental growth all depend on it. Developing the knowledge and abilities necessary to accomplish sustainable development (SD) is facilitated by education. Among many other things, it supports the advancement of democratic principles, social justice, and economic prosperity. A citizen's awareness of the need to safeguard the earth's finite resources is facilitated by education for Sustainable Development (ESD). With a balanced and holistic strategy for the environmental, social, and economic aspects of SD, the ESD aims to enable present and future generations to fulfill their needs. The notion of sustainable management, or SD, arose in reaction to growing concern over human influence on the environment, as was already mentioned before.

Promoting and assisting a sustainable development agenda, education for a sustainable society. An enhanced capacity for a sustainable society can only be achieved with the help of high-quality education. This was loudly emphasized in 2002 at the UN World Summit in Johannesburg, where it was stated that the key to SD was a reorientation of contemporary educational systems. It should be mentioned that teaching for sustainable development (SD) prioritizes the acquisition of the knowledge, abilities, and behaviors needed to build a sustainable society that upholds social justice, environmental preservation, and economic prosperity. India has historically had a sustainable society. The government of India has directed its various education departments to aggressively work on an environmental education (EE) component as part of the curriculum to promote the value of sustainable development in education. The holy grail of ESD is to advance environmental understanding. Environmental education, which aims to increase people's knowledge, abilities, values, and behavior

to prioritize environmental conservation, is largely responsible for the development of the concept of ESD. Enabling individuals to act and make decisions without endangering the planet Earth is the objective of ESD. The COVID-19 pandemic has caused a global catastrophe that is extremely restricting and may make it more difficult to overcome previously unheard-of difficulties. Closures of colleges, schools, and universities have prevented a large number of students worldwide from attending educational institutions. Those without access to computers, laptops, or tablets are unable to utilize online educational resources. The majority of pupils use their phone devices for online learning, but those with the least resources and the lowest incomes have been the most negatively impacted. Families are under a lot of strain. Incomes are declining and jobs are being eliminated. Environmental deterioration and climate change are happening significantly faster than anticipated. Globally, people are experiencing the effects. The intensity of the flames in Siberia, America, Australia, and Europe has surpassed previous records. Over 25 million individuals have been pressured to flee their homes in South Asia due to flooding in 2020. The idea is that the ESD seeks to increase people's awareness of and inclination toward obstacles that are caused by humans. ESD seeks to empower individuals to act and make decisions without endangering the planet's resources. The ESD describes how sustainable development ideas and practices might be integrated. It therefore seeks to promote behavioural adjustments that will lead to a more sustainable future. The world vision that the decade seeks to actualize is "a world where everyone has the chance to gain from a top-notch education and acquire the morals, habits, and ways of living necessary for constructive social change and a sustainable future." UNESCO's International Implementation Scheme for DESD states that behavior and values are the fundamental components of ESD. It is especially crucial to respect the curriculum, the earth's resources, and other people, including those of both the current and upcoming generations (UNESCO, 2006). Understanding others and ourselves is made possible by education. It makes an effort to deepen our ties to the larger social and ecological environments. This comprehension provides a solid foundation for developing respect. Additionally fostering a feeling of fairness, accountability, inquiry, and communication, ESD aims to enable individuals to embrace behaviors and practices that will enable us to live full lives without being denied basic



human needs and demands. The priorities of ESD are on environmental themes and concerns. Encouragingly, the ESD paints a beautiful picture of the future, emphasizing environmental challenges. In addition to these, it includes things like citizenship, ethics, governance, human rights, gender equality, and biological diversity as well as corporate responsibility and natural resource management. As per the UN Decade of Sustainable Development (2005-2014), several characteristics are universally recognized as crucial for the successful execution of ESD. These qualities show how equally important the educational process and its results are. Curriculum recommendations for primary, secondary, and postsecondary education are the main focus of ESD. Because so many curricula are transdisciplinary, an institutional approach to policymaking is possible. Sustainable development is based on ideals and ideas shared by the ESD. In actuality, it fosters critical thinking, problem-solving, and action orientation—all of which help people become more confident when tackling issues about sustainable development. Students can take part in making decisions on the structure and subject matter of educational planning.

- Education promotes sustainable literacy: Education provides learners possessing the abilities, dispositions, and information required to comprehend the interconnectedness of social, economic, and environmental systems. It helps individuals understand the intricate problems that our globe faces and provides them with the tools to address these challenges sustainably.
- Education fosters sustainable behavior: Education can shape individuals' values and attitudes, influencing their behavior towards sustainable lifestyles. It helps individuals to understand the impacts of their actions on the environment, society, and economy and empowers them to make decisions based on information that supports sustainability.
- Education supports sustainable development: Sustainable development requires a multi-disciplinary approach, and education plays a critical role in creating a work for capable of solving complex problems sustainably. Education can equip individuals with skills and knowledge in areas such as renewable energy, green technology, and sustainable agricultural practices, and which are essential for long-term development.
- Education promotes environmental stewardship: Education can promote environmental stewardship by increasing awareness of environmental issues, teaching responsible use of natural resources, and promoting conservation practices.

Education can empower individuals to take responsibility for protecting environmental concerns and building a more enduring global community. In summary, education is critical to achieving sustainability as it promotes sustainable literacy, fosters sustainable behavior, supports development that is sustainable, and promotes environmental stewardship.

### **Education for Sustainable Development in India**

The National Education Policy in India (NEP 2020) emphasizes the importance of education for sustainable development and recognizes the need to integrate sustainability principles across all levels of education. The NEP identifies sustainable development as a crucial priority area for education and includes several provisions to promote sustainable development in education. Here are some of the ways that NEP 2020 promotes sustainable development in education:

- Integration of environmental education: The NEP emphasizes the need to integrate environmental education across all levels of education, from primary to higher education. This includes creating awareness about environmental issues, promoting sustainable behavior, and developing skills necessary for sustainable development.
- Inclusion of sustainability in teacher training: The NEP recognizes that teachers play a crucial role in promoting sustainable development in education and emphasizes the need to include sustainability in teacher training programs.
- Promotion of experiential learning: The NEP promotes experiential learning, which involves hands-on and practical learning experiences, to develop skills and attitudes necessary for sustainable development.
- Focus on vocational education: The NEP encourages vocational training and skill-building initiatives that are pertinent to the local context and promote sustainable livelihoods.

- Use of technology for sustainability: The NEP recognizes the potential of technology in promoting sustainable development and encourages the utilization of technology in education to create awareness and promote sustainable behavior.

In summary, the National Education Policy 2020 in India recognizes the importance of instruction in light of sustainable development and has provisions to enhance environmental education, experiential learning, vocational education, teacher training, and the use of technology for sustainability. By integrating sustainable practices at all levels of education, the NEP aims to create so many sustainable and inclusive education system that equips learners with the necessities, expertise, and dispositions necessary for sustainable development.

### **Barriers to Education for Sustainable Development in India**

There are several barriers to education in India for sustainable development, which hinder the achievement of sustainable development goals. Below are a few of the major barriers:

- Lack of awareness: A deficiency exists in awareness about sustainable development and its principles among the general population, including students, parents, and teachers. Promoting education for sustainable development is challenging as a result.
- Inadequate infrastructure: Many schools and educational institutions in India lack the necessary infrastructure and resources to teach sustainable development effectively. This includes inadequate classroom facilities, libraries, and laboratories.
- Insufficient funding: Significant financing is needed to create and carry out programmes in education for sustainable development, but the education sector in India is underfunded. This makes it challenging to implement sustainable development initiatives in education.
- Limited teacher training: Teachers also play an important role in promoting sustainable development in education, but many teachers lack the necessary training and skills to teach sustainable development effectively.

- Socio-economic disparities: There are significant socio-economic disparities in India that hinder measure to education for sustainable development. Many disadvantaged communities lack evaluate to quality education and resources, making it difficult in order to encourage sustainable growth in these areas.
- Focus on traditional education: India's education system is heavily focused on traditional subjects, such as mathematics, science, and language, with little emphasis on sustainable development. This makes it challenging to integrate sustainable development principles into the curriculum.
- Resistance to change: There is resistance to change from various stake holders, including policymakers, educators, and parents, who are accustomed to traditional education systems and are skeptical of new approaches.

In summary, the barriers to education in India for sustainable development include a lack of awareness, inadequate infrastructure, insufficient funding, limited teacher training, socio-economic disparities, a focus on traditional education, and resistance to change. Overcoming these barriers requires a multi-pronged approach, involving government support, education reform, community engagement as well as public consciousness campaigns, to create a more sustainable future.

### **Suggestions to Overcome the Challenges:**

- Increase public awareness: Public education initiatives can be beneficial to raise awareness educate people on the concepts of sustainable development and raise the requirement for education in this area.
- Strengthen teacher training: Teachers play a important role in promoting sustainable development in education, so it's important to give them the essential training and skills to teach sustainable development effectively.
- Allocate sufficient funding: Sustainable development education calls for significant funding to develop and implement programs, so it's important to allocate sufficient funding to support sustainable development initiatives in education.
- Integrate sustainable development into the curriculum:

Sustainable development roles should be integrated into the curriculum across all subjects and grade levels, with a focus on project-based and experiential learning.

- Provide infrastructure support: Adequate infrastructure, including classrooms, libraries, and laboratories, should be provided to support education for sustainable development.
- Address socio-economic disparities: Efforts should be made to address differences in socio economic status and ensure that disadvantaged communities obtain resources for sustainable development and high-quality education.
- Encourage stakeholder engagement: Policymakers, educators, parents, and community members should be engaged in the creation and execution of projects for sustainable growth in education, to ensure broad-based support and effective implementation.
- Foster partnerships: Collaborations between civil society and government, and the private sector can help leverage resources and expertise to support education for sustainable development.
- Promoting community engagement: Community engagement and involvement are critical in order for the effective application of ESD programs. This includes engaging parents, local community leaders, and other stakeholders in the planning and implementation of ESD programs.
- Focusing on disadvantaged communities: Special attention should be given to disadvantaged communities, including rural and marginalized communities, to guarantee that individuals can obtain quality education and resources for ESD.
- Encouraging research: Research and development should be encouraged to explore innovative approaches to ESD and identify effective practices and models for implementation.

To ensure effective applying sustainable development education in India, it's important to increase public awareness, strengthen teacher training, allocate sufficient funding, integrate sustainable development into the curriculum, provide infrastructure support, address

socio-economic disparities, encourage stake holder engagement, and foster partnerships.

## Conclusion:

The creation of a sustainable future depends on education for sustainable development, or ESD, which is an international issue. The National Education Policy 2020 in India acknowledges the value of ESD and includes plans for incorporating it within the educational framework.

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## FEATURE ARTICLE

## Teacher's Role in Managing Culturally Diverse Learners in Classrooms

Dr. S. Thenmozhi\*

### Abstract

*This article explores the pivotal role of teachers in effectively managing culturally diverse learners within classroom settings. Acknowledging the increasing diversity in educational environments, it delves into the challenges and opportunities presented by cultural differences among students. Drawing on theoretical frameworks and empirical studies, it examines strategies for fostering inclusive classrooms where diverse cultural backgrounds are respected and leveraged to enhance learning outcomes. The article underscores the importance of teacher awareness, sensitivity, and proactive engagement in addressing cultural diversity, emphasizing the significance of culturally responsive teaching practices. Additionally, it highlights the role of curriculum development, instructional approaches, and classroom management techniques tailored to meet the needs of diverse learners. By providing insights and practical recommendations, this article aims to equip educators with the knowledge and skills necessary to effectively support and empower culturally diverse students in their learning journey.*

Key Words: Cultural diversity, Inclusive education, Culturally responsive teaching, Educational equity, Curriculum adaptation

### Introduction

In the words of Weinstein (2003), “the fundamental task of classroom management is to create an inclusive, supportive, and caring environment”. Organization, especially the social organization, that includes how students communicate and interact with each other and the teacher, is also a key to an inclusive, supportive, and caring environment. Every choice that a teacher makes

about organization or management, reflects a cultural perspective, whether it is visible or not. Likewise, the teacher's choices will affect students in different ways, depending upon how the children have been socialized within their home cultures. Thus, “effective classroom management requires knowledge of cultural backgrounds” (Weinstein, 2003). Such knowledge is essential also to the development of caring relationship and the interpersonal skills needs to interact effectively with both student and their families. Classroom management is said to be the set of strategies that teachers and students use to ensure a productive, disruptions in the leaning process.

### Necessity of Teacher to be Culturally Aware

Teacher's perception and values might feel stable, but they're actually influenced by social forces. Multiple cultures looking at the same problem often invent different. So teacher should become a culturally competent. Whereas, cultural competence is the ability to successfully communicate and empathize with people from diverse cultures and incomes, skills needed to close the achievement gap. Thus, Teachers, in particular, need to engage in on-going examinations of their attitudes about identity and cultures, and strive to minimize racial disparities. She must understand that everyone (including herself) has cultural “baggage”. Every teacher enters the classroom with expectations of how students ought to behave. Alongside this is the understanding that there already exist ethnic differences between students. These differences can be manifested differently in the classroom. It is true that teachers should treat their students as equal. But the teacher walks on shaky ground if she doesn't recognize the cultural differences between students. She needs it acquire “cultural content knowledge. Instead of

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trying to pretend that all students are the same, she needs to see the differences –differences in cultural norms, educational experiences, parental expectations, etc.

## Ways To Become Culturally Aware Teacher

For a teacher to manage a classroom of diverse student well, she needs to learn about the cultural background of her students. There are many ways for her to deepen her understanding of cultural diversity. There is no way to memorize the social nuances of every subculture. To build rapport, talk directly to children outside of class using their names. Also being class by checking in asking kids how they're doing even if the misbehavior of the previous class reached biblical proportions, reading in-depth research or balanced books describing different cultures, swapping stories from other teachers in similar situations, or talking to the student . With this knowledge in hand , the teacher will recognize that some cultural behavior is culturally influenced.

### 1. Appreciate and accommodate the similarities and differences among the students' cultures.

Effective teachers of culturally diverse students acknowledge both individual and cultural differences enthusiastically and identify these differences in a positive manner. This positive identification creates a basis for the development of effective communication and instructional strategies. Social skills such as respect and cross-cultural understanding can be modeled, taught, prompted and reinforced by the teacher.

### 2. Build relationship with students.

Developing an understanding of students' lives also enables the teacher to increase the relevance of lessons and make examples more meaningful.

### 3. Focus on the ways students learn and observe students to identify their task orientations.

Once students orientations are known the teacher can structure tasks by considering the views of some students regarding the needed time to prepare or attend to details. In this case the teacher can allow time for students to prepare and about their rituals or customs in a positive way.

### 4. Teach students to match their behaviors to the setting.

A person can behave differently in different settings. Teaching students the differences between their home school and community settings can help them switch to appropriate behavior for each context. For example, teacher may talk about the differences between conversations with friends in the community and conversation with adults at school and discuss how each behavior is valued and useful in that setting. While some students adjust their behavior automatically, others must be taught and provided ample opportunities to practice. Involving families and the community can help students learn to adjust their behavior in each of the settings in which they interact.

### 5. Use different management techniques.

They should apply management techniques to the physical space as well as student's behavior. Multiple intelligence theory, active learning technology and multicultural education that may be applied to teaching in the classroom. Teachers should be familiar with the obstacles they may face when implementing the techniques. Teachers must include the parents in the classroom activities.

### 6. Implement cultural understanding in classroom

There are six ways that an effective teachers can implement cultural understanding in the classroom (Weinstein, Curran, Tomlinson – Clarke). This includes Organizing the physical environment, Establishing expectations for behavior, and Communicating with students in culturally consistent ways. Cultural understanding in the classroom can also be enhanced b creating and caring inclusive classroom, interacting with families and dealing with problem behavior .

### 7. Positive classroom management techniques.

Teacher may use some unique positive classroom techniques, as enumerated below, to make the diverse learners more attentive and interested in the classroom. Some of these methods are monitor their discourse style indirectly, clarifying expectations .lucidly, being sensitive to how diverse cultures deal with conflict,



emphasizing a positive environment, not punishment and using humor as a classroom technique.

## Conclusion

School behavior problems often originate outside of the classroom. Teachers must first be aware of stereo types, ethnocentrism and prejudice. Many teachers feel frustrated and overwhelmed when they blindly to acquiring cultural knowledge. Though many teachers may have had at least some opportunity to learn about cultural issues in education, whether through per-services course or professional development workshops, is both easy to grasp and immediately useful for understanding arguably the most important distinctions among cultures. It leads to teachers were able to generated an almost endless array of successful strategies for working with the student and families they served and stimulate readers to generated their own innovations that make sense in their particular school communities. In fact, it will be most useful when it is used as a guide to learn from details of their own lives. Students who have had these practices integrated into their learning will also be better prepared for higher education and for the workforce.

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## FEATURE ARTICLE

## भाषाविकासे संस्कृतस्य योगदानम् (Bhāsāvikāse Sanskratasya Yogadānam)

Dr. Kartik Pal\*

**सारसंक्षेपः** — संस्कृतभाषा देवभाषा इति कथ्यते । संस्कृतभाषायां मानवसंस्कृतेरितिहासः सुरक्षितोऽस्ति । इयं संस्कृतभाषाऽन्याभ्यः सर्वाभ्योऽपि भाषाभ्यः प्रकारे विस्तारे च महती, सौन्दर्ये विचारपवित्रतायां चान्यूना विद्यते । सत्यपि मन्दतमे विकासक्रमे क्रमोपनते च वाधासमुदये इतिहासारम्भसमयत एव संस्कृतभाषा विश्वस्यान्यासां भाषाणां समतां कुर्वती समायाति । अन्याभिर्विश्वस्य भाषाभिरस्याः प्रतिस्पर्धा गुणगणकृतैव । भारतेऽजायन्त विविधानि सामाजिकपरिवर्तनानि, धार्मिकाण्युत्थानपतनानि, वैदेशिकानामाक्रमणानि च, तथाऽपि संस्कृतं सर्वदा समाभावेन सर्वत्र व्यवहारवर्त्मन्यवर्तत ।

संस्कृतं सर्वदा जीवितभाषाभावमभजत यतोऽत्रैव पूर्वतनाः सर्वेऽपि ग्रन्था अलिख्यन्त । आस्तां पुराणीकथा, संस्कृतस्य सम्प्रत्यपि जीवितभाषात्वे प्रमाणमिदं यदधुनाऽपि संस्काराः प्रायोऽधिकसंख्यकभारतीयानां संस्कृते एव सम्पाद्यन्ते, महाभारतप्रभृतयो धर्मग्रन्था अधीयन्ते, स्वीया विचारा लोकविशेषैः संस्कृते प्रकाश्यन्ते, कविता विरच्यन्ते च ।

**मुख्यशब्दाः** — भाषा, शिक्षा, संस्कृतभाषा, संस्कृतसाहित्यम् ।

**भूमिका** — चिन्तनस्य, विचारविनिमयस्य च प्रबलमाध्यमरूपेण, मानवविकासस्य प्रमुखसाधनत्वेन मानवसमाजस्य निर्माणस्य, विकासस्य च निदानत्वेन च भाषायाः योगदानं विज्ञैः सम्मन्यते । मानवसभ्यतायाः संस्कृतेऽपि विकासे भाषायाः स्थानं महत्वपूर्णं वर्तते । अत एव भाषाया इतिहासः, मानवसभ्यताया इतिहास इति कथनं युक्तियुक्तं प्रतिभाति । कस्यापि जनस्य बौद्धिकः, मानसिकः, सामाजिकः, राजनैतिकः, सांस्कृतिकश्च विकासः तस्य भाषायाः साहित्यस्य च समृद्धिमाश्रयति, यां सः साधनत्वेन उपयुक्ते । भाषायाः शिक्षा व्यक्तित्वस्य विकासे सहायिका भवति । सा व्यक्तेः कृते दैनिकजीवने व्यावहारिककुशलतां कल्पयति । अपेक्षितज्ञानं ददाति कलात्मकानुभूतेः रचनात्मकाभिव्यक्तेश्च अवसरान् कल्पयति । मानवव्यक्तित्वस्य गतिशीलता बहुशः भाषाप्रयोगे निर्भरा भवति । तथा चोत्तं स्पष्टं भवति यत् शिक्षायां भाषायाः विशेषमहत्त्वमस्ति । यदि शिक्षा जीवनाय सन्नाहः तर्हि भाषा अस्य उद्देश्यस्य पूर्तये प्रबलं साधनं भवति ।

भाषाविज्ञानपण्डितानां मते आर्यभाषा सेमेटिकभाषा चेति द्वयोरेव भाषयोर्व्यवहर्तारः सभ्यतां संस्कृतिञ्च सृष्टवन्तः । आर्यभाषाऽपि पाश्चात्यपौरस्त्यभेदेन द्विविधा । अस्मिन्नार्यभाषायाः पाश्चात्यप्रभेदे यूरोपदेशस्य प्राचीना आधुनिक्यश्च ग्रीक—लैटिन—फ्रेञ्च—जर्मन—इङ्गलिशप्रभृतयो भाषाः समायान्ति । आर्यभाषायाः पौरस्त्यप्रभेदे ईरानीभाषा संस्कृतभाषा च समागच्छतः । ईरानीभाषा जेन्दअवेस्ता नाम्ना व्यवह्रियते यत्र पारसीकानां धर्मग्रन्था निबद्धा, संस्कृतभाषायां भारतीयानां धर्मग्रन्था निबद्धा इति प्रतीतमेव ।

साहित्यं नाम शब्दार्थयोः सहितभावः । तच्च कमपि विषयमधिकृत्यप्रवर्तते । तदेव तात्कालिकसामान्यमूल्यस्य दर्पणस्तन्निर्द्धारकञ्च । यस्य कस्यापि समुदायस्योत्कर्षस्य साहित्यमेव परं प्रमाणम् । यथा यथा समुदाय औत्कर्ष्यं भजते तथा तथा तस्य साहित्यमपि उत्कृष्टतरं सञ्जायत एव । तेन साहित्यं भाषा—भाव—विशयनिमित्तं समाजस्याधमर्णं भवति मूल्यविस्थापने तस्य तदुपरि उत्तमर्णताऽपि । अतः साहित्यसमाजावन्योन्यस्य प्रयोजकौ भवतः ।

प्रतिसमाजं लिखितमलिखितं वा स्वानुकूलप्रकृतिकं साहित्यं तु भवत्येव किन्तु पूर्वमेवापरापेक्षया प्रभावि भवति स्थायिप्रकृतिकत्वाल्लिपिबद्धतया । अपरञ्च, अलिखितमपि साहित्यं कालान्तरे लिपिबद्धं भवत्येव । सम्प्रति ह्युपलब्धेषु सर्वेष्वपि साहित्येषु संस्कृतसाहित्यं प्राचीनतमं परिष्कृतञ्च दृश्यते ।

सामान्यतस्तु भाषा नाम व्यक्ता वाक् अर्थाद् भावाभिव्यक्तये प्रयुक्तानां सार्थकशब्दानां समष्टिरेव भाषेति कथ्यते । भाष्यते व्यक्तरूपेण किञ्चिन्मनोगतमभिव्यज्यते इति भाषा (व्यक्तायां वाचि) धातोः गुरोश्च हलः इति स्त्रियामप्रत्यये टापि भाषेति सिध्यति यस्य योगार्थो भवति व्यक्तरूपेण जल्पनम् तेन भाषाविद्विर्भाषेत्थं परिभाषिताऽस्ति — भाषा नाम यादृच्छिकवाचिकध्वनिसङ्केतानां सा पद्धतिर्यया जनाः परस्परं विचारस्य विनिमयं कुर्वन्ति इति ।

**संस्कृतभाषा** — संस्कृतभाषा विश्वभाषासमुदाये मूर्द्धन्यं स्थानं

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गृहणाति। अस्याः प्राचीनतमं स्वरूपमृगवेदे एव दृश्यते। तेन तस्याः प्राचीनतमस्वरूपावधारणाय न ऋग्वेदादन्यत्रमाणम्। किन्तु सम्बद्धविद्वांसस्तत्रापि वाञ्छितनिष्कर्षं नैव लभन्ते प्रामाणिकत्वेन। तत्रानेके प्रश्ना उत्तिष्ठन्ते किमृगवेदलक्ष्यमेव संस्कृतस्य प्राचीनतमं रूपमथवा तस्मादपि प्राचीनतमं रूपमासीत्? ऋग्वेदस्यैवापि नवविधाः शाखा उच्यन्ते, तेषु कतमा प्राचीनतमा? संस्कृतस्य मौलिकरूपे विकासः सम्भवति न वा? किमिदं प्राग्भाषितभाषाऽसीद्वा केवलं साहित्यिकभाषैव? तस्या व्यवहार्यत्वेऽपि किमिदं जनसाधारणस्य भाषाऽसीद्वा कस्यचिद्द्वर्गविशेषस्यैवेति?

इयं देवभाषेत्युच्यते। दैवी वाचमजनयन्त देवास्तां विश्वरूपाः पशवो वदन्ति इत्याद्या अनेका उक्तयो वेदेष्वेव दृश्यन्ते। किन्तु तत्रापि के च ते देवाः इति विषये विपश्चितो नैवैकमत्यं पालयन्ति। केचिदिन्द्राद्यान् देवान् मन्यन्ते ये खलु त्रिदशालये वा देवनगरे निवसन्ति। अपरे तु देवा वै विद्वांसः इति मतमनुसृत्य संस्कृतं विद्वत्समुदायस्य भाषेति व्यवहरन्ति। अधिकांशविचक्षणास्तु देवशब्देन त्रिदिवौकसः एव गृहीत्वा तत्पर्यायवाचिशब्दानामपि तत्र प्रयोगं कुर्वन्ति यथा गीर्वाणभाषा, सुरभाषा।

अत्रोच्यते – संस्कृतभाषा निःशङ्कमेव विश्वभाषासु प्राचीना सुसंहता च। अस्याः प्राचीनत्वं न केवलं ग्रन्थतः एवाऽपितु व्यवहारादपि सिध्यति।

**संस्कृतभाषायाः वैशिष्ट्यं स्वरूपञ्च** – भाषायाः साहित्यिकं रूपं संस्कृतपदेनाभिहितं सामान्यरूपं तु प्राकृतपदेनेति। तत्र वयमेतावदेव ब्रूमो यत्संस्कृतान्णियमाबद्धात्प्राकृतस्योत्पत्तेर्नैव सम्भवो न च प्राकृतस्य परिष्कृतं रूपमेव संस्कृतं भवितुमर्हति। नैव च कस्या अपि भाषायाः साहित्यिकमेव रूपं सम्भवति समाजानपेक्षसाहित्यस्य नितान्तासम्भवात्। एकयोनित्वादेव संस्कृतप्राकृतयोर्नियमसाम्ये समानप्रवृत्तिकत्वञ्च। तयोर्मौलिकवैशिष्ट्यमपि समानमेव। तानि च वैशिष्ट्यान्त्र सारतयोद्धियन्ते।

संस्कृतभाषा मूलतः संश्लेषणप्रवृत्तिका। अस्या शब्दरूपाणि प्रकृत्या सह प्रत्ययानां संश्लेषणे भवन्ति। यथा रामस्य, रामस्स, गृहे, घरम्मि, भवति, होदि।

प्रत्ययाणां योगश्च प्रकृत्यनन्तरमेव भवति न तु तत्पूर्वं वा तन्मध्येऽपि। यस्मात्प्रत्ययो विधिः सा प्रकृतिः प्रकृत्यनुयोगी प्रत्ययः। प्रकृतिश्च धातुप्रातिपदिकभेदेन द्विधा। प्रत्ययस्तु बहुविधः सुप्तिङ्कृदन्ततद्धितस्त्रीप्रत्ययादिभेदात्। यथा रामस्य, रामस्स, जानाति, जाणइ।

अत्राधिकांशधातव एकस्वरयुताः व्यञ्जनानां बाहुल्येऽपि। यथा क्लृप्, स्वप्, भू।

पदानां पदयोर्वा समस्तताऽप्यस्या वैशिष्ट्यमितरविलक्षणम्। अत्र एकाधिकानि पदान्यपि समस्तत्वेनैकपदवद्भासन्ते। यथा

बल + देवः = बलदेवः, बलदेओ।

अस्या अपरञ्च वैशिष्ट्यं स्वराणामवश्रुतिर्यत्र सन्ध्यादिना स्वरा स्वेषामेवापराण्यपि रूपाणि प्रतिपादयन्ति। यथा रमा + ईशः = रमेशः।

केचिदस्याः संस्कृतम् इति नामाधृत्येमां कृत्रिमामिति कथयन्ति। तदनुसारं प्रकृतिर्जनभाषा ततः संस्कृत्य निर्मितं संस्कृतमिति तेषां मतम्। यथाऽहनमिसाधुः काव्यालङ्कारटीकायां – सकलजगज्जन्तूनां व्याकरणादिभिरनाहितसंस्कारः सहजो वचनव्यापारः प्रकृतिः। तत्र भवं सैव वा प्राकृतम्। आत्सिवयणे सिद्धं देवाणं अद्धमागहा वाणी इत्यादिवचनाद्वा प्राक्पूर्वं कृतं प्राकृतं बालमहिलादिसुबोधं सकलभाषानिबन्धनभूतं वचनमुच्यते। मेघनिर्मुक्तजलमिवैकस्वरूपं तदेव च देशविशेषात्संस्कार करणाच्च समासादितविशेषं संस्कृताद्युत्तरविभेदानान्प्रोति। अत एव शास्त्रकृता प्राकृतमादौ निर्दिष्टं तदनु संस्कृतादीनि। पाणिन्यादिव्याकरणोदितशब्दलक्षणेन संस्करणात्संस्कृतमुच्यते इति। अपरे तु तद्विपरीतं प्रकृतिरेव संस्कृतमिति वदन्ति तत आगतत्वात्प्राकृतमिति। वस्तुतस्तु न तु प्राकृतस्य संस्कृतरूपं संस्कृतं नैव च प्रकृतिः संस्कृतमपि। उभे एव मते अतिवादितामारोहत इत्यस्माकं मतम्। वयन्तु जनभाषायाः साहित्यिकं रूपमेव संस्कृतपदेनाभिधीयते सामान्यस्वरूपन्तु प्राकृतमिति। अत एव भगवान् पाणिनिरपि संस्कृतं भाषाशब्देनैव व्यवहरति यत्र कुत्र। एतावदेव तत्रान्तरं यत्संस्कृतस्य साहित्यस्वरूपत्वात्तच्छिष्टानां भाषितभाषाऽसीत् तद्विपरीतं सामान्यजनास्तु प्राकृते एव व्यवहरन्ति स्म किन्तु तेऽपि संस्कृतमवश्यमेव जानन्ति स्म। आदिकालादारभ्य मौर्यकालपर्यन्तं संस्कृतमेव लिखितभाषाऽप्यासीत्। अशोकस्य शिलालेखेष्वेव प्रथमं प्राकृतस्यापि प्रतिष्ठितरूपं दृश्यते। तेन संस्कृतं नैव कृत्रिमभाषाऽपि तु शिष्टजनभाषितभाषैव।

**संस्कृतसाहित्यस्य महत्त्वम्** – संस्कृतसाहित्यं न केवलमार्यणामेवापि तु मानवजातेरेवामूल्योऽक्षयश्च सांस्कृतिकनिधिः। अस्य रचनाचारुत्वमर्थनिधानं प्रतिपादितमूल्यञ्चेति त्रीणि मुख्यवैशिष्ट्यानि यैरिदमितरसाहित्यापेक्षया नितान्तोत्कर्षमावहति। अस्य विषयव्यापकत्वं तत्रतिस्पर्धिनोऽपि नतमस्तकान् करोति। अस्मिन् मानवजीवनस्य चत्वारो मुख्यपुरुषार्था धर्मार्थकाममोक्षाः साङ्गोपाङ्गं विवेचिताः सन्ति। अस्य किंवा वैदिकमुत वा लौकिकमपि साहित्यं समग्रमेव मानवमूल्यमात्मसात्कृत्य व्याख्याति। विश्वसाहित्यापेक्षया नितान्तप्राचीनतमसाहित्यरूपेण सर्वेषामेव साहित्यानामादर्शो गुरुश्च। अत्र च सर्वमेव मानज्ञानं मूर्तिमत्त्वेनावभासते। अज्ञातकालादारभ्याद्य यावद् धाराप्रवाहरूपेण सततं प्रवर्तमानमिदं नैकासां सभ्यतानां संस्कृतीनां, सृष्टीनां, प्रलयानाञ्च साक्षित्वेनापि विराजते। अत्र हि चत्वार एव वेदाः, ब्राह्मणानि, आरण्यकानि, उपनिषदः, कल्पसूत्राणि, गृह्यसूत्राणि, शुल्वसूत्राणि, शिक्षाः, व्याकरणानि,

निरुक्तं, छन्दांसि, ज्योतिषं, धनुर्वेदः, आयुर्वेदः, गान्धर्ववेदः, अर्थशास्त्रम्, पुराणानि, शिल्पशास्त्राणि, धर्मशास्त्राणि, काव्यानि, लक्षणशास्त्रम्, अलङ्कारशास्त्रम्, दर्शनानि च स्वस्वभेदोपभेदयुतानि यथायथं प्रकरणानुरूपं समुपवर्णिताः सन्ति। ईदृशं विस्तृतं परिपूर्णञ्च साहित्यं नान्यस्यां भाषायां कुत्रापि दृश्यते।

तदित्थं गरिमामण्डितं संस्कृतसाहित्यं कदा कथमुत्पन्नमिति जिज्ञासा सर्वेषां भवत्येव किन्तु तत्तर्पणं न तथा सुकरम्। अपौरुषेयत्वेन वाऽज्ञातपौरुषेयत्वेन वा प्रथमं तु वेदा एव श्रुतिपथमागताः। तेषां मन्त्राश्च प्रथममृषिभिर्दृष्टाः सङ्कलिताश्च। मन्त्राश्च द्विविधा कर्मविवेचका ज्ञानविवेचकाश्च। कालक्रमेण मन्त्रा दुर्बोध्याः सञ्जाता अतस्तेषां व्याख्यानाय ब्राह्मणानि सृष्टानि। अत एव तान्यपि पश्चाद्देवेष्वान्तर्भावितो इति मन्त्रब्राह्मणयोर्वेदना-मधेयत्वमुररीकृतम्। ततश्चापि आरण्यककर्मविवेचनाय आरण्यकान्यपि सृष्टानि। वेदोक्तज्ञानविषयव्याख्यानायोपनिषदः प्रतिपादिताः।

तथैव वेदमन्त्राणामुच्चारणज्ञानाय शिक्षाः प्रणीताः श्रौतगृह्यादिकर्मज्ञानाय श्रौत-गृह्य-शुल्वसूत्राणि प्रणीतानि। शब्दानां साध्वसाधुत्वविवेचनाय व्याकरणमाविष्कृतम्। भगवान् खलु शङ्करः प्रथमो वैयाकरणो द्वितीयश्च बृहस्पतिस्तृतीय इन्द्रः। शब्दनिर्वचनज्ञानाय निरुक्तग्रन्था निर्मिताः। वेदमन्त्राणां वृत्तज्ञानाय छन्दःशास्त्रं प्रवर्तितम्। वेदोक्तकर्मनिमित्तककालज्ञानाय ज्योतिषमपि व्याख्यातम्। इत्थं वेदानां षडङ्गानि व्याख्यातानि। तथैव ऋग्वेदात्सारमादाय आयुर्वेदो व्याख्यातः, यजुर्वेदस्य साररूपेण धनुर्वेदः प्रणीतः, सामवेदस्य सारत्वेन गान्धर्ववेदो निर्मितः, अथर्ववेदस्य साररूपेण अथर्ववेदः, शिल्पशास्त्रं, वार्ताशास्त्रं, वाणिज्यशास्त्रं, भूतविद्या चेत्याद्याः प्रणीताः। इत्थं साङ्गोपाङ्गं वैदिकसाहित्यं प्रथमं प्रपञ्चितम्।

ततश्च तत्प्रवेशसौकर्याय कान्तासम्मिततयोपदेशयुक्ताव्य-साहित्यमपि प्रचालितम्। अत्रान्तरे वेदोक्तधर्मव्याख्यानाय धर्मशास्त्राण्यपि प्रणीतानि मन्वादिभिः। ततश्च वेदार्थोपबृंहकं पुराणसाहित्यमपि बहुशाखत्वेन प्रणीतम्। तत्तच्छब्दावबोधनाय सुविस्तृतं कोषसाहित्यमपि प्रचालितम्। काव्यसाहित्ये क्रमशः गद्य-पद्य-चम्पू-दृश्य-श्रव्याद्यनेकप्रकारा अपि उन्नायिताः। तेषाञ्च स्वरूपज्ञानाय तत्तल्लक्षणग्रन्थाश्च भरतभामहादिभिः प्रणीताः। जीवजगदीश्वरविषयकज्ञानविवेचनाय बहुशाखं दर्शनशास्त्रं प्रणीतम्। इत्थं लौकिकसाहित्यमेव आयुर्वेद-ज्योतिष-व्याकरण-काव्य-दर्शन-कोष-धर्म-

अर्थ-कामसम्बद्धानि अनेकानि साहित्यानि स्वरूपतामायातानि। तदित्थं श्रीमन्नुपविक्रमार्कात् षट्सहस्रमितवत्सर-पूर्वकालादारभ्य अद्ययावदनवरतरूपेण प्रणीयमानं व्याख्यायमानमभ्यस्यमानञ्च संस्कृतसाहित्यं यदि कृत्रिमत्वेन गृह्यते तदा तु जगदवस्थितिरेव कृत्रिमा सम्पद्यते।

**निष्कर्षः** - संस्कृतसाहित्येतिहासे वैदिकसंस्कृतसाहित्यं लौकिकसंस्कृतसाहित्यम् इति भागद्वयमुपलभ्यते। वैदिकसंस्कृतस्य स्वरूपं वेदेषु तस्मिन् काले रचितेषु अन्येषु ग्रन्थेषु च उपलभ्यते। लौकिकसंस्कृतं प्रायः पाणिनिव्याकरण नियमानुसारं भवति। लौकिकसंस्कृते काव्यानि, पुराणानि, धर्मशास्त्रम्, अलङ्कारशास्त्रं, कोशाः, गणितं, ज्योतिषम् इत्यादयोऽनेके विषयाः उपलभ्यन्ते। काव्यान्यपि महाकाव्यं, खण्डकाव्यं, श्रव्यकाव्यं, दृश्यकाव्यं, गद्यकाव्यं, पद्यकाव्यं, चम्पूकाव्यं, नीतिकाव्यं गीतिकाव्यम् इत्यादीनि बहुविधानि उपलभ्यन्ते।

प्राचीनकाले संस्कृतं न केवलं साहित्यिकभाषा, किन्तु साधारणजनानां व्यावहारिकी भाषाप्यासीत्। अनन्तरकाले उत्पन्नाः स्थानीयभाषाः संस्कृतभाषया, साहित्येन च अत्यन्तं प्रभाविताः अभवन्। पाणिन्यादयोः महर्षयः सूत्रसाहित्यस्य प्रणयनकुर्वन्। धर्मस्य संरक्षणेन, प्रोत्साहनेन च संस्कृतं देवभाषापदमलभत। प्राचीनशिलालेखेषु संस्कृतस्य उपलभ्यमानत्वात् अस्याः प्राचीनत्वं, राजकीयत्वं व्यावहारिकत्वञ्च प्रमाणितं भवति।

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## FEATURE ARTICLE

## वाङ्मीमांसा

डा. उमेशचन्द्र मिश्रः\*

**भूमिका** - संस्कृतभाषायारूपविषये पाश्चात्यविदुषां मतं सर्वथा काल्पनिकम्। भारतीयवाङ्मयेन तेषां मतस्य पुष्टिः लेशमात्रोऽपि न भवति। ते ग्रीक्-लैटिन-हिटिट्यादिभिः याभिः भाषाभिः साहित्यस्याधारेण वा भाषावैज्ञानिकं सिद्धान्तं नियमं परिकल्पयन्ति संस्कृतवाङ्मयस्यार्वाचीनत्वं प्रमाणयन्ति च ताः सर्वाः भाषाः संस्कृतभाषापेक्षात्यन्तार्वाचीनाः। तैः परिकल्पिता प्रागैतिहासिककालिकी इण्डोयोरपियनप्राकृतभाषा या च संस्कृतभाषाजननी तस्या स्वरूपमद्यावध्यनुपलब्धम्। अतः सर्वथा काल्पनिकमपूर्णमर्धजरतीयं तेषां भाषाविज्ञानं विज्ञानपदविं नारोहति। तेन शोधलेखेऽस्मिन् मे प्रवृत्तिः। भारतीयज्ञानपरम्परायां वाचः स्वरूपनिर्णयः लेखस्योद्देश्यम्।

वाक्पदवाच्यः मनुष्यवाग्येव। यस्य आङ्गलभाषायां फिलोलोजी (Philology) इति व्यवहारः। वाक्त्वं एव मनुष्यस्य पशुसकासात् व्यावर्तकः। भारतीयज्ञानपरम्परायां दैवीमानुषीभेदेन वाक्त्वं द्विधाविभक्तम्। तेनोक्तम्—

तस्माद् ब्राह्मण उभे वाचौ वदति  
दैवी च मानुषी चेति ॥ (का.सं.14—05)

दैवीवाण्याः छन्दस्युपयोगः, मानुषीवाण्यास्तु लोके, तस्यैव मनुष्यवाचः पर्यालोचनाय सर्वेषां कृते षडङ्गयुक्तवेदाध्ययनमत्यावश्यकमेवेत्याह पतञ्जलिर्महाभाष्ये — “ब्राह्मणेन निष्कारणो धर्मः षडङ्गो वेदोऽध्येयो ज्ञेयश्चेति” ॥<sup>1</sup> तस्य वाचः परिरक्षणं व्याकरणाध्ययनेनैव कर्तुं शक्यते। अतः व्याकरणाध्ययनस्य मूलं कारणं वेदाध्ययनमिति पर्यवसितम्। तेनाध्येयं व्याकरणमित्यभियुक्तोक्तिः। “प्रधानं च षट्स्वङ्गेषु व्याकरणम्<sup>2</sup>। प्रधाने च कृतो यत्नः फलवान् भवति।” इति महाभाष्योक्त्या व्याकरणशास्त्राध्ययनं कर्तव्यमेव।

व्याकरणशास्त्रस्य त्रयः पक्षाः संस्कृतभाषायां दृश्यन्ते प्रक्रियापक्षः दार्शनिकपक्षः ऐतिहासिकपक्षश्चेति। इतोऽपि साम्प्रतमेतादृशस्य लेखस्यावश्यकता अस्ति विद्वत्समाजे, यः तज्जिज्ञासून् छात्रान् व्याकरणशास्त्रस्याध्ययने प्रेरयति। इदानिन्तने काले वेदस्याध्ययनमध्यापनं च तथा न प्रचलति यो व्याकरणशास्त्रस्याध्ययने प्रयोजनत्वेन महाभाष्यदिशास्त्रेष्वपवर्णितः। सर्वे साम्प्रतिकवैज्ञानिकयुगेऽर्थ—

सम्पादने उद्योगप्राप्तये तत्पराः सन्ति। अतो व्याकरणशास्त्रस्यावश्यकतां परिज्ञातुं प्रतिपादयितुं च मम लेखेऽस्मिन् प्रवृत्तिः।

जगतीतले को वा न जानाति पाणिनिप्रणीतामष्टाध्यायीम्। व्याक्रियन्तेऽसाधुशब्देभ्यः साधुशब्दाः पृथक्कियन्ते येन तद् व्याकरणमिति व्युत्पत्त्या असाधुशब्दावधिक साधुशब्दकर्मक पृथक् कृति करणीभूतो नियमविशेषः व्याकरणशब्देनोच्यते। “अथ शब्दानुशासनमिति<sup>3</sup>” भाष्यात् इदमेव लक्षणं प्रतीयते। अथ ‘व्याकरणमित्यस्य शब्दस्य कः पदार्थः’ इति जिज्ञासायाम् “लक्ष्यलक्षणे व्याकरणमिति<sup>4</sup>” समाधानवाक्येन भाष्यकृता इदमेव लक्षणं प्रमाणितं तदिदं लक्षणं पाणिनीयव्याकरणे सुष्ठुतरां सङ्घटते। व्याकरणं कस्यापि भाषायाः समीचीनं बन्धनं भवति। तथा किञ्चित्पात्रं दुग्धपूर्णं कृत्वा तन्मुखं पिधाय रज्वादिना वेष्टयित्वा अगाधेऽपि जले निक्षिप्यते कञ्चित्कालञ्चातीत्य पुनर्निष्काशयते चेत् समग्रं दुग्धं तद्रूपेणैव लभ्येत। यदि तु कस्यचिद् दुग्धपूर्णस्य घटस्य मुखमपिपायैव जले प्रक्षिप्यते तर्हि तद् सर्वं दुग्धं नूनं जलमिश्रितं स्यात्। तद्वदेव भाषायाः व्याकरणबन्धनमन्तरा जगत्यामस्तित्वमेव न स्यात्। एवञ्च तत्तद्भाषायां कृते तानि तानि व्याकरणानि भाषायाः व्यभिचार दोषान् निवारयन्ति। अतः पतञ्जलिराह — एकैकस्य हि शब्दस्य बहवोऽपभ्रंशाः। तद्यथा। गौरित्यस्य शब्दस्य गावी, गोणी, गोता, गोपतलिकेत्येवमादयोऽपभ्रंशाः<sup>5</sup>। इति। अनेन विवेचनेन स्पष्टतया ज्ञायते प्राचीनकाले संस्कृतभाषा अत्यन्तविस्तृतासीत्। सा एव भाषावैज्ञानिक विश्लेषणे भारोपीया भाषापदेन परिज्ञाता। जगती सर्वासु भाषासु संस्कृतभाषायाः प्रभावोऽस्ति। अस्याः एव संस्कृतभाषायाः शब्दाः अपभ्रंशभाषासु कुत्रचिद् आंशिकरूपेण परिवर्तिताः कुत्रचिद् तु पूर्णरूपेण विकारग्रस्ताः अभवन्। अतः अपभ्रंशभाषायाः विश्लेषणेन कदाचिद् तस्य बीजं संस्कृतभाषायां लभ्यते कदाचिन्न लभ्यते। पाणिनीयधातुपाठे एकैकस्यार्थस्य कृते अनेके धातवः सन्ति। तस्य प्रयोजनं व्यवहारश्च देशान्तरेषु भाषान्तरेषु भवति। अतः संस्कृतभाषायाः विश्वभाषात्वं प्रख्यापयति पतञ्जलिः “अस्त्यप्रयुक्तः” इति वार्तिकस्य व्याख्यानावसरे समाधानभाष्ये—

“सवे खल्वप्येते शब्दा देशान्तरेषु प्रयुज्यन्ते। न चौवोपलभ्यन्ते

\*केन्द्रीय संस्कृत विश्वविद्यालयस्य, गुरुवायूरपरिसरस्य, केरलस्थस्य, विभागाध्यक्षः



उपलब्धौ यत्नः क्रियताम् । महाज्ञशब्दस्य प्रयोगविषयः । सप्तद्वि पा वसुमती । त्रयो लोकाः, चत्वारो वेदाः, साङ्गाः सरहस्या बहुधा भिन्ना एकशतमध्वर्युशाखाः, सहस्रवर्तमा सामवेदः, एकविंशतीधा बाहवृच्यं, नवधाऽऽथर्वणो वेदः । वाकोवाक्यम्, इतिहासः, पुराणं, वैद्यकमित्येतावाञ्छब्दस्य प्रयोगविषयः । एतावन्तं शब्दस्य प्रयोगविषयमनुनिशम्य सन्त्यप्रयुक्ता इति वचनं केवलं साहसमात्रमेव । एतस्मिंश्चातिमहति शब्दस्य प्रयोगविषये ते ते शब्दास्तत्र तत्रनियतविषया दृश्यन्ते । तद्यथा शवतिर्गतिकर्मा कम्बोजेष्वेव भाषितो भवति । विकार एनमार्या भाषन्ते शव इति । हम्मातिः सुराष्ट्रेषु, रंहतिः प्राच्यमध्येषु, गमिमेव त्वर्याः प्रयुञ्जते । दातिर्लवनार्थं प्राच्येषु, दात्रमुदीच्येषु<sup>6</sup> । इति ।

अनेन परिज्ञायते विश्वस्य यस्याः कस्यापि भाषायाः ऐतिहासिकपृष्ठभूमिं परम्परां विज्ञातुं संस्कृतभाषायाः व्याकरणस्य आलोडनं नितान्तमपरिहार्यम् । पाणिनीयं महाशास्त्रं न केवलं संस्कृतभाषायाः कवचभूतमस्ति अपितु विश्वस्य सर्वासां भाषाणां सुरक्षावलयमस्ति । अतः साधूक्तं मनुस्मृतौ भगवता मनुना –

एतद्देशप्रसूतस्य सकासादग्रजन्मनः ।

स्वं स्वं चरित्रं शिक्षेरन पृथिव्यां सर्वमानवाः<sup>7</sup> ।।

अतः विश्वभाषायाः कृते पाणिनीयव्याकरणस्य महनीयं स्थानमस्ति । यतो ह्यस्मिन् संसारे मानवः स्वकीयं मनोभावं प्रकारद्वयेन प्रकटयति वाणीमाध्यमेन लेखनमाध्यमेन च । वाणीमाध्यमेन मनुष्याः मनोभावं सहजतया सरलतया प्रकटयन्ति । लेखनेन तु लेखनकलापाटवः स्वकीयं भावं लिखितरूपेण प्रकाशयितुं समर्थाः भवन्ति । उक्त प्रकारद्वयेऽपि व्याकरणशास्त्रस्य महती आवश्यकता वर्तते ।

आवश्यकताविष्कारस्य जननीत्याभाणकानुसारेणैव सर्वैः प्रयतितव्यम् । एवञ्च तादृशः प्रयासः कर्तव्यः येन च लेखने पाटवं भाषणे शुद्धतापरिलसितं मार्दवमागच्छेत् । व्याकरणशास्त्रस्य महीयान् महिमा वरीवर्ति । प्रतिपादितञ्च तदेव वाक्यपदीयस्य ब्रह्मकाण्डे—

आसन्नं ब्रह्मणस्तस्य तपसामुत्तमं तपः ।

प्रथमं छन्दसामङ्गं प्राहुर्व्याकरणं बुधाः ।।

प्राप्तरूपविभागायाः यो वाचः परमो रसः ।

यत्तत्पुण्यतमं ज्योतिस्तस्य मार्गोऽयमाञ्जसः ।।

अर्थप्रवृत्तिं तत्त्वानां शब्दा एव निबन्धनम् ।

तत्त्वावबोधः शब्दानां नास्ति व्याकरणादृते ।।

तद्द्वारमपवर्गस्य वाङ्मलानां चिकित्सितम् ।

पवित्रं सर्वविद्यानामधिविद्यं प्रकाशते ।।

यथार्थजातयः सर्वाः शब्दाकृति निबन्धनाः ।

तथैव लोके विधानामेषा विद्या परायणम् ।।

इदमाद्यं पदस्थानं सिद्धिसोपानपर्वणाम् ।

इयं सा मोक्षमाणानामजिह्वा राजपद्धतिः ।।

अत्रातीत विपर्यासः केवलामनुपश्यति ।

छन्दस्य छन्दसां योनिमात्मा छन्दोमयी तनम् ।।

प्रत्यस्तमित भेदाया यद्वाचो रूपमुत्तमम् ।

यदस्मिन्नेवतमसि ज्योतिः शुद्ध विवर्तते<sup>8</sup> ।।

ज्योतिशशास्त्रबिभारदेन श्रीभास्कराचार्येणापि व्याकरण-शास्त्रविषये कथितमस्ति यत् –

यो वेद वेदवदनं सदनं हि सम्यक्

ब्राह्म्यः सवेदमपि वेद किमन्यशास्त्रम् ।

यस्मादतः प्रथममेतदधीत्य विद्वान् ।

शास्त्रान्तरस्य भवति श्रवणेऽधिकारी ।।

संस्कृतभाषायाः यावन्ति प्राचीनार्षव्याकरणशास्त्राणि निर्मितानि सन्ति तेषु पाणिनीयव्याकरणमेव साङ्गोपाङ्गरूपेणोपलब्ध-मस्ति । पाणिनीयव्याकरणं भारतीयवाङ्मयस्यैकोऽनुपमनिधिः । अनेन देववाणी गौरवान्विता विराजते । अस्य रचना इयती सुन्दरतया सुसम्बद्धा च विद्यते । सम्पूर्णसंसारे कस्याश्चिदपि भाषायाः व्याकरणमद्यावधि ईदृशं परिष्कृतं नैव निर्मितम् । प्रसिद्धो ह्यूनसाङ्गनामा चीनीयात्री स्वयात्रावृत्तान्ते लिखति यद् पाणिनीयव्याकरणे सम्पूर्णप्राचीननवीनज्ञानं सन्निविष्टं वर्तते । अन्येऽपि पाश्चात्यविद्वांसः पाणिनीयव्याकरणममुना प्रकारेण प्रशंसन्ति –

१. “संस्कृतव्याकरणं मानवमस्तिष्कस्य प्रतिभायाः आश्चर्यतमं प्रतीकमस्ति ।”

प्रो. मोनियर विलियम्होदयः

२. भारतीयव्याकरणान्वयस्य योग्यता विश्वस्य कस्मिश्चिदपि साहित्यादत्युच्चैर्विराजते ।, प्रो. मैक्समूलरमहोदयः

३. संसारस्य व्याकरणेषु पाणिनीयव्याकरणमत्युन्नतं वर्तते । सर डब्ल्यु हन्टरमहोदयः

४. इदं पाणिनीयव्याकरणं मानवीयमस्तिष्कस्य सर्वासु श्रेष्ठरचनास्वेकोत्तमारचना विद्यते ।

लेनिनग्रादवास प्रो.टी.वी. शेरवात्सकी<sup>10</sup>

एवं प्रकारेण सुनिश्चितमिदं जगति भवति व्याकरणविद्या एव सर्वविद्यानां निदानमस्ति । संस्कृतभाषा विश्वभाषायाः जननी । अस्यैव संस्कृतव्याकरणशास्त्रस्य प्रभावः संसारे कालजयी कीर्तिः । अतः एषा भाषा देशकालपरिच्छिन्ना नास्ति । अहो ते नराः कथं न धिक्कृति भाजो न भवेयुः ये खलु “अमरभाषामेनां मृतभाषा इति निगदन्ति ते आदौ प्रष्टव्याः किं भाषायाः प्राणधारिणीशक्तिः भवति? ते नूनमस्या अमरभाषायाः स्वादानभिज्ञाः । अहो ! यथा माता दुहितृभ्यो दुग्धं

पाययित्वा जीवयति । तद्वत् या भाषा भाषान्तरेभ्यः प्रतिशतं प्रायोऽशीति-संख्यकान् सप्ततिसंख्यकान् षष्ठीसंख्यकान् वा शब्दान् दत्त्वाद्यापि उज्जीवयति । सा कथं मृता इति विदाङ्कुर्वन्तु । अतो व्याकरणशास्त्रस्याध्ययनेन देववाणीः पुष्पितः फलितः प्रतिमण्डितो भवेदिति नास्ति संशयलेशः ।

### टिप्पणी -

१. महाभाष्यम् – पस्पशाह्निकम् – शब्दानुशासनप्रयोजनम्
२. महाभाष्यम् – पस्पशाह्निकम् – शब्दानुशासनप्रयोजनम्
३. महाभाष्यम् – पस्पशाह्निकम् – शब्दानुशासनप्रयोजनम्
४. महाभाष्यम् – पस्पशाह्निकम् – व्याकरणपदार्थनिरूपणम्
५. महाभाष्यम् – पस्पशाह्निकम् – शब्दस्य ज्ञाने धर्म आहोस्वित्प्रयोगे
६. महाभाष्यम् – पस्पशाह्निकम् – अस्त्यप्रयुक्तः
७. मनुस्मृतिः – प्रथमोऽध्यायः
८. वाक्यपदीयम् – ब्रह्मकाण्डः
९. सिद्धान्तशिरोमणिः – भाष्कराचार्यः
१०. संस्कृतव्याकरणशास्त्र का इतिहास – आचार्ययुधिष्ठिरमीमांसकः

## FEATURE ARTICLE

## লক্ষ্য হোক সুশিক্ষা, ভরসা থাকুক ডিজিটালে, ভালো হোক পড়ুয়ার জীবন: সারভাইভারশিপ বায়াস নিয়ে একটি পর্যবেক্ষণ

সলিল কুমার দত্ত \*

**সারাংশ:** "Survivorship bias is a type of selection bias that ignores the unsuccessful outcomes of a selection process." সারভাইভারশিপ বায়াস হল এক ধরনের নির্বাচন পক্ষপাত যা একটি নির্বাচন প্রক্রিয়ার অসফল ফলাফল কে উপেক্ষা করে। রাস্তার হোর্ডিং এ কিংবা খবরের কাগজে বিভিন্ন কোচিং সেন্টারের বিজ্ঞাপনে অনেক সময় দেখা যায় তাদের কতজন ছাত্র কোন প্রতিযোগিতামূলক পরীক্ষায় সফল হয়েছে। সফলকাম দের জন্য সগৌরব ঘোষণা। তাদের সংখ্যা মূল প্রতিযোগী সংখ্যার শতকরা হিসেবে অত্যন্ত নগণ্য যা কিনা শতকরা এক বা তারও কম। গৌরব তাদের জন্য। কিন্তু যারা এই ছোট ছোট সংখ্যার সফলতায় মধ্যে আসতে পারল না তাদের খবর কেউ কখনো রাখে না। তারা কি বিবর্তনের সূত্র অনুযায়ী সত্যিই হারিয়ে যায়! না কি তারা যোগ্যতমের উদবর্তন করে অন্য পথে এগিয়ে যেতে পারে? বর্তমান এই গবেষণাপত্রটি কিছু সমীক্ষা ও কিছু বাস্তবতার মাধ্যমে তারই বিভিন্ন দিক তুলে ধরার চেষ্টা করছে কিছু প্রেক্ষিত নিয়ে। অধ্যয়ন করা হয়েছে এমন কিছু যা প্রকাশিত হয়েছে অথবা সমাজের বিশেষ কিছু অংশের স্বাভিজ্ঞতার প্রতিফলন হিসেবে শিক্ষা নিয়ে নিজের পথে অগ্রসর হচ্ছে।

বিশেষ শব্দমালা: সারভাইভারশিপ বায়াস, অকৃতকার্য, সুশিক্ষা, পড়ুয়ার জীবন।

**সূচনা:** "Whatever you think, you will be. If you think yourself weak, weak you will be; if you think yourself strong, you will be"-Swami Vivekananda.

আমরা যা চাফুস দেখি প্রধানত তার উপরের ভিত্তি করেই গড়ে ওঠে আমাদের বিশ্বাসের নকল গড়। না দেখা সত্য কি

প্রায়ই পদ্ধতিগতভাবে অগ্রাহ্য করে চলি আমরা। কখনো হয়তো বা খানিক অবচেতনেই, না বুঝে এই চলা। সাফল্যের প্রতি আমাদের দুর্বীর মোহ চিরকাল। সাফল্য আমাদের ছুটিয়ে ফেরে মরীচিকার মতো। মানুষ বুঝতেই পারেনা তার অজান্তে যারা সাফল্যের চূড়ান্ত পর্যায়ে পৌঁছতে পারেনি তারা ঠিক কোথায় যায়। তাই বাঁচার এই নানা পথ হয়তবা আমাদেরকে অন্য একটি নতুন পথের সন্ধান দেয়। ভাবনার শুরুর হয় সেখানেই। বাঁচার যে সামাজিক ও কার্মিক পক্ষপাত দুইটা সেটাই উপজীব্য হয়ে ওঠে। অর্থাৎ যে টিকে গিয়েছে, বেঁচে গিয়েছে, জয়ী হয়ে ফিরেছে তার দীপ্তির সম্মোহনে ছুটে চলে দিনরাত দুর্নিবার টানে। মানুষ শিখতে চায় জীবন- যুদ্ধে বিজয়ীর কাছ থেকে। বিজিতদের কাছ থেকে কি বা শেখার থাকতে পারে! সামাজিক প্রেক্ষাপটে যদি দেখা যায় এর মধ্যে কোন ভুল নেই। নেই অন্যায়। কিন্তু ঘটনাচক্রে যা দেখা যায়, মানুষ প্রায়শই এর মাধ্যমে অবজ্ঞা করে চলে পরাজিতের হেরে যাওয়ার অভিজ্ঞতাকে, তার অমূল্য শিক্ষাকে। দুনিয়াটা আসলে জয়ীর চারণভূমি। বিজয়ী কে নিয়েই লেখা হয় সমস্ত রকম সাফল্যের ইতিহাস বা মহাকাব্য। পরাজিত কে নিয়ে আলোচনা পর্যালোচনা খুবই বিরল। সে কারণে জীবনের নানা ক্ষেত্রেই জয়ের সম্ভাবনাকে বেশি করে ভেবে ফেলি আমরা। এমনকি কতটা যে সঠিক পথ তাও ঠিক বুঝে উঠতে পারি না জীবনের উত্তরণের পথ চলতে গিয়ে।

কোভিড পরবর্তী কঠিন ও প্রায় ভয়াতুর বিশ্ব পরিস্থিতির কথা ভেবে, আমাদের বর্তমান কেন্দ্র ও রাজ্য সরকার শিক্ষার্থীদের প্রতি যে সুনজর ও বিকল্প উদ্দেশ্য লক্ষ্য রেখে আগামী দিনের সাফল্য অর্জনে যে চিন্তা ভাবনা করেছেন তার কিছু নমুনা অভিজ্ঞতা বিনিময়ের মাধ্যমে বর্তমান ছাত্র বা শিক্ষার্থী সমাজের কাছে পৌঁছে দেওয়ার জন্য এই হৃদয়স্পর্শী আলোকবর্তিকা। এই ক্ষুদ্র গবেষণা সমীক্ষা ও

\* অধ্যাপক ও স্বতন্ত্র গবেষক

প্রয়াস আশা করি আমার প্রিয় শিক্ষার্থী মন্ডলী ও সহকর্মী শিক্ষক- শিক্ষিকা এবং শিক্ষা কর্মী বন্ধুগণের কাছে গ্রহণযোগ্য হবে, পথ চলতে সাহায্য করবে। সময় বলবে সব কিছু। এই প্রয়াস হয়ত আগামী দিনে আমাদের নব প্রজন্মের ছাত্রছাত্রীকে সঠিক দিশা দেখাতে পারবে এই সমীক্ষা ও পর্যালোচনা।

প্রায় দু বছরের কভিড বিধ্বস্ত ক্লান্ত পৃথিবী, নব সাধারণ অনিশ্চিত জীবনে পড়ুয়া ও কর্ম সন্ধানীদের কথা বলতে গিয়ে কবিগুরু রবীন্দ্রনাথের ভাষায় সোনার তরী কাব্যের বসুন্ধরা কবিতার মা মৃতিকার মত.....

মানবসম্পদ আজ বসুন্ধরা মৃন্ময়ীর মত!

"..... বিদারিয়া

এ বক্ষপঞ্জর, টুটিয়া পাশানবন্ধ  
সংকীর্ণ প্রাচীর, আপনার নিরানন্দ  
অন্ধ কারাগার----হিল্লোলিয়া, মর্মরিয়া,  
কম্পিয়া, স্থলিয়া, বিকরিয়া, বিচ্ছুরিয়া,  
শিহরিয়া, সচকিয়া, আলোকে পুলকে,  
প্রবাহিয়া চলে যায় সমস্ত ভুলোকে  
প্রাণ হতে প্রান্তভাগে, উত্তরে দক্ষিণে,  
পূর্বে পশ্চিমে;....."

২০২০ সালের করোনা আক্রমণের পর বিধ্বস্ত বিশ্বমানব। সারা পৃথিবীর শিক্ষা ব্যবস্থা ও মানব সম্পদের সম্পর্কের বিশ্লেষণ ও মতামত, বিজ্ঞান ও মননের নানা ব্যাখ্যা প্রসূত ফলাফলে প্রায় অস্থির হয়ে পড়ে সেই সময়। আজও অপরিবর্তিত সেই হঠাৎ করে স্তব্ধ হওয়ার আতঙ্ক। আজ মা বসুন্ধরা কে ডেকে কবির সেই আকৃতির মত আকৃতি করতে হয়..

"কোথা আছো ওগো, করহ পরশ নিকটে আসি।

কহিবে না কথা, দেখিতে পাবনা নিরব হাসি।।"

উদ্দেশ্য: জীবন ভবিষ্যৎ তৈরীর নৈবর্তিক মূল্যায়নে পদ্ধতিগতভাবে আমরা উপেক্ষা করে চলি হেরে যাওয়া মানুষদের তাদের ব্যর্থতার মধ্যে লুকিয়ে থাকা প্রয়োজনীয় তথ্য। উপেক্ষা করে চলি বিজিত মানুষদের ব্যর্থতার কাহিনী। অতিরিক্ত গুরুত্ব দেওয়া হয়ে যায় উদ্বর্তন এর মধ্য দিয়ে জয়ীদের ইতিহাস। তৈরি হয় এক ধরনের ব্রান্তিবিলাস যার বিশ্ব স্বীকৃত নাম সারভাইভারশিপ বায়াস বা কৃতকার্য ও অকৃতকার্যদের বিশ্লেষণে এক ধরনের ব্রান্তিবিলাস। বর্তমান এই গবেষণাপত্রে সফলদের লক্ষ্য করে অসফলদের হারিয়ে যাওয়ার যে ইতিহাস তার পেছনে সমাজের যে কত খানা

কঠিন সময় এসে পৌঁছেছে সেই অংশটি বিশ্লেষণ করার চেষ্টা করা হয়েছে।

**গবেষণা পদ্ধতি:** সফল ও অসফলদের পরিসংখ্যান সংগ্রহের জন্য বিভিন্ন পত্রপত্রিকার প্রকাশিত তথ্যাবলী ও গবেষক তার নিজের ক্ষেত্রকর্মের অভিজ্ঞতার বিশ্লেষণ সহজ সরল এবং গুণগত গবেষণা পদ্ধতির মাধ্যমে পর্যালোচনা করেছেন। এই গবেষণার প্রয়োজনে লেখক ও গবেষক সরাসরি ভারতবর্ষের রাজস্থান রাজ্যের কোটা শহরের পর্যবেক্ষণ ও বর্তমান কিছু সর্বভারতীয় এবং পশ্চিমবঙ্গ রাজ্যের কিছু প্রকাশিত তথ্য বিশ্লেষণ ও পর্যালোচনার মাধ্যমে গবেষণাটি সম্পন্ন করেছেন। লেখক নিজে ২০২৩ সালের এপ্রিল থেকে জুলাই অবধি কোটা শহরের বিভিন্ন কোচিং সেন্টার পর্যবেক্ষণ করেছেন ও নানা স্তরের উত্তরদাতাদের কাছ থেকে সরাসরি তথ্য সংগ্রহ করেছেন। প্রত্যেকটি উত্তরদাতার বিশেষ অনুরোধে ও গবেষণার প্রয়োজনে (research ethics বা গবেষণা নীতিশাস্ত্র) তাদের কারোরই নাম প্রকাশ করা সম্ভব হবে না। গবেষণার উপাত্ত সংগ্রহের পর সেগুলি সরাসরি গুণগত বিশ্লেষণ করে তার উপস্থাপন সহজ ও সরল ভাষায় করার চেষ্টা করা হয়েছে।

**সংগৃহীত প্রাপ্ত তথ্য বিশ্লেষণ:** কেন্দ্রে প্রাথমিক শিক্ষা সংক্রান্ত সমীক্ষা, যার কেতাবি নাম 'ফাউন্ডেশনাল লিটারেসি ইন্ডেক্স'(Foundational Literacy Index -FLI), পশ্চিমবঙ্গ রাজ্যবাসীকে অন্য সুখবর দেয়। কারণ এই মাপকাটিতে বড় রাজ্যগুলির মধ্যে পশ্চিমবঙ্গই প্রথম, এমনকী কর্ণাটক, মহারাষ্ট্র তামিলনাড়ুর মত শিল্পোন্নত রাজ্য গুলির থেকেও এগিয়ে। কিন্তু সার্বিকভাবে এই সমীক্ষায় দেশে প্রাথমিক শিক্ষার যে চিত্রটি পরিস্ফুট হয়েছে, তা উদ্বেগজনক। এই সমীক্ষায় ১০ বছরের কম বয়সী শিশুদের সাক্ষরতার গুণমান নির্ধারিত হয়েছে পাঁচটি বিষয়ের নিরিখে---- শিক্ষাগত কাঠামো, শিক্ষার অধিকার সাধারণ স্বাস্থ্য, শেখার ফলাফল ও প্রশাসন পরিচালনা। এরকম একটি সমীক্ষায় প্রথম স্থান পাওয়া অবশ্যই কৃতিত্বের এবং আশাপ্রদ। কারণ, দীর্ঘমেয়াদি উন্নয়ন এর নির্মাণ করে শিক্ষা ব্যবস্থা। বিশেষত প্রযুক্তিনির্ভর যুগে সুশিক্ষিত কর্মীর চাহিদা ক্রমশ বেড়ে চলেছে। প্রাথমিক শিক্ষার গুণমান উন্নত হলে তা উচ্চ শিক্ষার পথ প্রশস্ত করে, যার দরুন কর্মক্ষম মানুষের দক্ষতা ও বাড়ে। তবে এর দরুন যেন আত্মতুষ্টি না জন্মায়, সেদিকে নজর দেওয়া দরকার। বরং এই সুফল

কি পরবর্তী স্তরের শিক্ষা ক্ষেত্রে উন্নয়নের সোপান হিসেবে ব্যবহার করা দরকার। ( এই সময়, ১৯ শে ডিসেম্বর, ২০২১, পৃষ্ঠা ৮)।

যেটি উদ্বেগের, তা হল সার্বিকভাবে প্রাথমিক শিক্ষার শোচনীয় অবস্থা। এই চিত্রের কিছুটা ইতিপূর্বেই প্রতিফলিত হয়েছে 'অ্যানুয়াল স্টেটাস অফ এডুকেশন' বা অ্যাসার (Annual Status of Education Report -ASER, 2021) রিপোর্টে। দেখা গিয়েছে যে কভিডের সময় পড়ুয়াদের শিক্ষার গুণমান আরো কমেছে। স্কুলছুট পড়ুয়ার সংখ্যা ক্রমবর্ধমান, সেটি সহজবোধ্য। কেন্দ্রীয় সরকারের সমীক্ষা এই উদ্বেগের আবেহে আরও একটি নতুন মাত্রা যোগ করল, কারণ তা প্রমাণ করলো প্রাথমিক শিক্ষায় প্রযুক্তি ব্যবহারের ক্ষেত্রে দৈন্যদশা। ঐ অতিমারির পর্বে মূলত অনলাইনে পড়াশোনা সম্পন্ন হয়েছে। কিন্তু উল্লিখিত সমীক্ষায় দেখা গিয়েছে যে অসংখ্য স্কুলে কম্পিউটার ইন্টারনেট এমনকি বিদ্যুৎ সংযোগের মত বুনিয়ে পরিষেবা ও নেই। দেখা গিয়েছে যে, শিক্ষকদের একাংশ পড়ানোর সময় প্রযুক্তি ব্যবহারে অর্কুসুক। সবথেকে শোচনীয় অবস্থা শিক্ষাক্ষেত্র পরিচালনার। এই মাপ কাঠিতে প্রায় অর্ধেক রাজ্যই জাতীয় গড়ের তুলনায় পিছিয়ে। এই সমীক্ষা কেন্দ্র ও সব রাজ্যের জন্য একটি সতর্কবার্তা। অবিলম্বে প্রাথমিক শিক্ষার খামতি নিয়ে উদ্যোগে নাহলে উন্নয়নে নিরিখে দেশ আরো পিছিয়ে পড়বে। (এই সময়, ১৯ শে ডিসেম্বর, ২০২১, পৃষ্ঠা ৮)।

## কোভিড চলা কালীন ও পরবর্তী সময় পঠন পাঠন প্রায় বন্ধ থাকায় শেখা জিনিস ভুলে যাচ্ছে বা ভুলে গেছে পড়ুয়ারা:

একটা দৌড় যেন চলমান। দীর্ঘদিন স্কুল-কলেজ বন্ধ থাকায় পড়ুয়ারা সঠিক পঠন পাঠন করতে পারেননি। অনিবার্য ফল ফেলেছে তাদের বোধ ও জ্ঞান সঞ্চারের ক্রম উন্নতিতে। সম্প্রতি রাজ্যের শিক্ষক শিক্ষা কর্মীদের এক আলোচনা সভায় জানা গিয়েছে কভিডের সময় স্কুল বন্ধ থাকার জেরে বহুসংখ্যক পড়ুয়া ভাষার প্রাথমিক জ্ঞান ও সাধারণ যোগ-বিয়োগের অংক ভুলে গিয়েছে। এই আলোচনা সভায় প্রথম থেকে পঞ্চম শ্রেণীর সাত হাজারের উপর পড়ুয়ার উপর করা একটি সমীক্ষার কথা বলা হয়েছে সেখানে দেখা গিয়েছে ১০০ জনের মধ্যে ৯২ জন স্কুলে শেখা প্রাথমিক ভাষা শিক্ষা অনেকটাই ভুলে গিয়েছে। ৮২ শতাংশ পড়ুয়া ভুলে গিয়েছে সাধারণ যোগ বিয়োগ। সর্বভারতীয় স্তরে পৃথক একটি

সমীক্ষায় দেখা গেছে দেশে প্রায় সর্বত্রই শিক্ষার এই হাল। শুধুমাত্র দেশের বড় শহরের বসে স্কুল শিক্ষার প্রকৃত চিত্রটা উপলব্ধি করা যায় না বাস্তব হলো অতিমারীর সময়ে দেশে প্রায় অর্ধেক পড়ুয়া শিক্ষার পরিধির বাইরে চলে গিয়েছেন। প্রথম প্রজন্মের শিক্ষার্থীদের ক্ষেত্রে এটা অনেক বেশি চিন্তার (এই সময়, ৭ ই সেপ্টেম্বর, ২০২১)।

কভিড সময়কালে ও বর্তমানে অনলাইন শিক্ষা বলতে যা বোঝানো হয় তার দৈনন্দিন সুযোগ খুব অল্পসংখ্যক এর কাছে পৌঁছায়। শহরের বেসরকারী বা ও সরকারী মাধ্যমিক স্কুলে যারা পড়েন তাদের এই আওতায় আনলে চলবে না, তারা সংখ্যাগরিষ্ঠ ভাবেই অনলাইন শিক্ষার আওতায় মধ্যে রয়েছে।

কিন্তু যারা এই সুযোগ থেকে বঞ্চিত, তারা, যারা অংকের পাঠ ভুলে গিয়েছেন কিংবা যারা স্কুলের পরিধিতে আসার সম্ভাবনাকেও হারিয়ে ফেলেছেন, তাদেরকে অতীতের জায়গায় ফিরিয়ে আনা খুব সহজ কাজ নয়।

আসলে আমাদের জীবনের বহুপ্রকাশ ভঙ্গিকেই ভুল বিষয় প্ররোচিত করে চলেছে এই সারভাইভারশিপ বায়াস বায়াস বা মহাবিদ্যালয় গুলির ক্ষেত্রে কিছুটা সঠিক ভাবে কার্যকরী আন্তর্জালিক পঠন-পাঠন হলেও অনলাইন শিক্ষা ব্যবস্থা তারা নিতে পারছেন বটে কিন্তু পরীক্ষা দেওয়ার ব্যাপারে তাদের মানসিক পরিস্থিতি টা সম্পূর্ণ অন্য পথে পরিচালিত হচ্ছে। তারা কেবলমাত্র শংসাপত্র ও মূল্যায়িত মার্শিট এর প্রয়োজনীয়তা উপলব্ধি করছেন, কিন্তু শিক্ষার আসল উদ্দেশ্য কি তা প্রায় বিসর্জন দিয়ে ফেলেছেন! এই সমস্যাটি ও এখন কর্কট রোগের মতো সমাজকে গ্রাস করতে চলেছে।

দ্বিতীয় বিশ্বযুদ্ধের পটভূমিতে বিখ্যাত রাশি বিজ্ঞানী এবং গণিতজ্ঞ আব্রাহাম ওয়াল্ডের একটি বিশেষ দর্শন ও গবেষণা নিবন্ধ সারভাইভারশিপ বায়াস এর বিশ্লেষণ পরিষ্কার করেছেন। তিনি যুদ্ধে পরাজিত বিমানগুলির ক্ষতস্থান গুলিকে বেশি নজর দিয়েছিলেন যেখানে সকলের নজর ছিল অপরাধিত বিমানগুলির ক্ষতস্থান পর্যালোচনা করা। তার গবেষণায় হেরে যাওয়া বা যুদ্ধে নষ্ট হয়ে যাওয়া বিমানের পর্যবেক্ষণ থেকে সমস্ত বিমান ও বিমান কর্মীকে রক্ষা করা ও অনেকটা সুষ্ঠুভাবে পরিচালনা করার যে উল্টো পথের বিশ্লেষণ তর্কালীন যুদ্ধ পরিচালকমন্ডলীকে সাহায্য করেছিল সেটাই ছিল সারভাইভারশিপ বায়াসের উল্টোদিকের ধনাত্মক পর্যালোচনা। এ যুগের অন্যতম বিশিষ্ট চিন্তাবিদ নাসিম নিকোলাস তালেব তার বেশ সেলার বই 'দ্য ব্ল্যাক সোয়ান' এ লুকিয়ে থাকা তথ্যকে 'সাইলেন্ট এভিডেন্স' অর্থাৎ 'নীরব-



প্রমাণ' হিসেবে আখ্যা দিয়েছেন। যা সারভাইভারসিপ বায়াস এর চরিত্র বৃত্তিতে গুরুত্বপূর্ণ একটি পথ দেখায়।

প্রকৃত বিশ্লেষণ করলে দেখা যায় আমাদের জীবনের বহুপ্রকাশ ভঙ্গিকেই ভুল দিশায় প্ররোচিত করে চলেছে এই সারভাইভারসিপ বায়াস। আমরা বাড়ি থেকে পালানো কিছু তরুণের গল্প শুনি, যারা পরবর্তীকালে তাদের কর্মকাণ্ডের সঠিক প্রয়োগে অচেনা থেকে সম্পূর্ণরূপে হয়ে উঠেছেন সফল হলিউড বা বলিউড অভিনেতা। আমরা ভাবি অবাক হই এবং মনেওনি যে সত্যিই এরকম ভাবেই জীবনের উত্তরণ সম্ভব। কিন্তু কত তরুন যে অভিনেতা কিংবা গায়ক হওয়ার তীর তড়নায় সব ছেড়ে মুম্বাই গিয়েও কিছুই করে উঠতে পারেননি জীবনে সে তথ্য আমাদের কাছে থাকে না। আসলে বোধ হয় আমরা সে বিষয়ে খুব একটা আগ্রহী ও নই। হারিয়ে যাওয়ার প্রকৃত তথ্য থাকলে হয়তো দেখা যেত যে তথাকথিত সফলেরা বিরলের মধ্যে বিরলতম।

রাস্তার হোর্ডিং এ কিংবা খবরের কাগজে বিভিন্ন কোচিং সেন্টারের বিজ্ঞাপনে অনেক সময় দেখা যায় তাদের কতজন ছাত্র কোন প্রতিযোগিতামূলক পরীক্ষায় সফল হয়েছে তারক ঘোষণা। কখনোবা এই সফল ছাত্রদের নাম কিংবা ছবি-সহযোগেও প্রচার করা চলে। কিন্তু অকৃতকার্য কতজন, অসফল কতজন, তাদের পরিসংখ্যান কোন বিজ্ঞাপন দেয় না! যা মানুষের মনকে অন্য পথে পরিচালিত করতে পারত। আসলে সবটাই হয় বিজ্ঞাপনের প্রয়োজনে। কিন্তু জীবন সর্বদা বিজ্ঞাপনের হাতিয়ার নয়। বাস্তব এখানে আসল জীবনের উদ্বর্তনের চাবিকাঠি।

## ভারতের উচ্চমাধ্যমিক (দ্বাদশ শ্রেণী) পরীক্ষার পর বিশেষ সাফল্যের কারণে রাজস্থানের কোটা শহরের কিছু বাস্তব চিত্র:

রাজস্থানের কোটা শহরে একসময় রেয়ন, টায়ার, রাসায়নিক শিল্পের কারখানায় ভরা ছিল। বর্তমানে পিছু হটেছে এই সমস্ত শিল্প কারখানা জায়গা নিয়েছে একটি বড় শিল্প-কোচিং শিল্প। ডাক্তার বা ইঞ্জিনিয়ার করার স্বপ্ন যে সমস্ত অভিভাবক দেখে থাকেন তাদের সন্তানদের পথপ্রদর্শক এই কোচিং সেন্টার নামক বিশেষ কারখানা। ডাক্তার ও ইঞ্জিনিয়ারিং এর পড়ুয়া তৈরির কারখানা। ডাক্তারি পড়ার প্রবেশিকা পরীক্ষা নিট এবং ইঞ্জিনিয়ারিং পড়ার প্রবেশিকা পরীক্ষার জেইই মেইনস বা অ্যাডভান্স এর জন্য প্রস্তুতিতে প্রশিক্ষণের মক্কা।

গোটা দেশের পড়ুয়ারা দল বেঁধে কোটার বিভিন্ন কোচিং সেন্টারে পড়তে আসে। পশ্চিমবঙ্গ থেকে গুজরাট, উত্তর প্রদেশ থেকে বিহার, অসম থেকে মধ্যপ্রদেশ, অরুণাচল থেকে ঝাড়খন্ড, মহারাষ্ট্র থেকে হরিয়ানা, উত্তরাখন্ড থেকে দক্ষিণ ভারত - কোন রাজ্য বাকি নেই। প্রায় শ'খানেক কোচিং সেন্টারের মধ্যে রয়েছে কোটার এলেন, বনসল ক্লাসেস, রেজোন্যান্স, মোশন, আকাশ, কেরিয়ার পয়েন্ট, ফিজিক্স ওয়ালা(পি ডব্লিউ) আনএকাডেমি প্রভৃতি নানা নামের প্রতিষ্ঠান। যে কেউ সপরিবারে বা একটি বাচ্চা নিয়ে কোটা স্টেশনে নামলেই অটোওয়ালাদের প্রথম প্রশ্ন হয় কিছু কোচিং সেন্টারের নাম দিয়ে জিজ্ঞাসা করা, কোন সেন্টার।

মাধ্যমিক বা দশম শ্রেণীর পরই ভর্তি শুরু হয়। আলাদা করে স্কুলে ভর্তির দরকার নেই। নিয়মের খাতিরে উচ্চ মাধ্যমিক পাস করার জন্য কোচিং সেন্টার থেকে স্থানীয় স্কুলে ভর্তি করে দেওয়া হয়। মজার কথা হলো এই স্কুলগুলোর আসলে কোন অস্তিত্বই নেই। সবটাই কাগজে-কলমে। এখানকার পড়ুয়াদের পরিভাষায় 'ডামি স্কুল'। সকল পড়াশোনা হওয়ায় আসলে কোচিং সেন্টার গুলোতেই। সকাল থেকে রাত্রি পর্যন্ত চলে কোটা ফ্যাক্টরি বিভিন্ন বিষয়ের নানা পর্যায়ের পড়াশোনা। হোস্টেলে ফিরেও ছাত্র-ছাত্রীদের নেই কোন রেহাই। তারা হোমওয়ার্ক মক টেস্টের প্রস্তুতিতে শামিল হয় আরো সাত- আট ঘন্টা।

এই আগামী দিনের সাফল্য অর্জন সমন্বিত মানুষ তৈরীর কারখানায় ঠিক কত সংখ্যক ছাত্রছাত্রী রয়েছে তার একটা মোটামুটি হিসেব করা যায়। কোন সঠিক সরকারি তথ্য বা বেসরকারি তথ্য প্রকাশিত হয় না। প্রায় চার হাজার হোস্টেল ও ৪০ হাজার মত পেইং গেস্ট বা পিজি তে থাকার ব্যবস্থা রয়েছে কোটা শহরে। কোটার ভাষায় 'রেসিডেন্স'। কোন হোস্টেলে ২৫ থেকে ৩০ জন কোথাও ১০০ জনের থাকার ব্যবস্থা। এক কামরার ঘর, খাট, আলমারি, বইয়ের আলমারি, পড়ার টেবিল চেয়ার, এসি বা কুলার। হোস্টেলেই খাওয়া-দাওয়ার বন্দোবস্ত। এই কোচিং সেন্টারগুলিকে কেন্দ্র করেই পুরনো কোটার পাশে গড়ে উঠেছে নতুন কোটা। তার একদিকে কোচিং সেন্টারের অটালিকা। অন্যদিকে রাজীব গান্ধী নগর, মহাবীর নগর, জওহর নগর, বিজ্ঞান নগর, তালওয়ান্ডি, ল্যান্ডমার্ক সিটি, কেরল পার্ক প্রভৃতি নতুন নতুন জনবসতি। সেখানে প্রতিটি রাস্তায় অলিতে গলিতে শুধুই হোস্টেল পিজি লাইব্রেরী। সবমিলিয়ে বার্ষিক অন্তত দশ হাজার কোটি টাকার অর্থনীতি। না এটা প্রমাদ নয় ১০০০০

কোটি টাকা বা তারও বেশি, এটাই একটা মোটামুটি পরিসংখ্যান।

কোচিং সেন্টারের পড়াশোনার খরচ হোস্টেল এবং সেন্টারের নাম অনুযায়ী বছরে এক এক জন ছাত্র-ছাত্রী পিছু এক লক্ষ পঁচিশ হাজার টাকা থেকে দু লক্ষ টাকা মোটামুটি খরচ। হোস্টেল ও নিজের খরচ ধরলে তা প্রায় আরো এক লাখ টাকা কাছাকাছি। পিজিতে থাকলে হোস্টেলে তুলনায় একটু কম খরচ বহন করতে হয়। একাদশ দ্বাদশ শ্রেণীর দু'বছর নিট বা জেইই প্রস্তুতি নিতে খরচ অন্তত পাঁচ থেকে ছয় লাখ টাকা, তার সঙ্গে বিভিন্ন সময় অথবা বাড়ির প্রয়োজনে নিজের বাড়িতে আসা-যাওয়া, বাবা-মায়ের দেখতে আসার খরচ সব মিলিয়ে মাসে আরো পাঁচ থেকে ছয় হাজার টাকার আলাদা বরাদ্দ। অনেক প্রতিযোগী পড়ুয়া মা বা অবসর নেওয়া দাদু ঠাকুমার সাথে ক্ল্যাট ভাড়া করে থাকেন। সম্বল ব্যবসায়ী পরিবার হলে বাবা-মা দুজনেই সন্তানের সঙ্গে দু'তিন বছর কোটা-য় থেকে গিয়ে ওদের দেখাশোনা করেন। এদের মধ্যে বেশিরভাগই প্রথমবার ভালো ফল করতে পারে না তাই তারা দ্বিতীয়বার এই প্রতিযোগিতার পরীক্ষাগুলোতে বসার জন্য দু বছরের জায়গায় তিন বছরের কোচিং নেয়। সমানতালে চলে খরচের বাহার।

## আত্মহত্যা ও পড়ুয়া- এক বাস্তব পরিণতি:

খরচ যখন হচ্ছে তখন প্রত্যাশাও থাকবে। বাড়তে থাকে সমানতালে মাথা ও মনের উপর চাপ। দিনে ১৬ থেকে ১৮ ঘন্টা এমনকি কুড়ি ঘন্টা ধরে পড়াশোনার চাপ। সময় ধরে শ্রেণিকক্ষে পৌঁছানো, হোমওয়ার্ক ও মক টেস্টের চাপ, সর্বোপরি নিজের ও বাবা-মার প্রত্যাশার চাপ। ডাক্তারি পড়তে হলে দরকার ভালো উল্লেখযোগ্য এইমস অথবা সরকারি কলেজে স্থান পেতে হলে নিটের সামনের সারিতে সাফল্য অথবা আইআইটি, এনআইটি কিংবা ভাল সরকারী ইঞ্জিনিয়ারিং কলেজ এর স্থান পেতে জেইই মেইন্স ও অ্যাডভান্স এর চাপ আসে নীরবে নিভুতে। তাতে এই কিশোর থেকে যৌবনের পথে উত্তরণে চলে আসে এক গভীর অবসাদের নিকশ কালো অন্ধকার। নীরব দমফাটা আত্মনাদের আহ্বানে কে দেবে সাড়া? অবশেষে জাত বা অভ্যাসসারে অবসাগ্রস্ততা গ্রাস করে উজ্জ্বল এই সদ্য সমাপ্ত কিশোরের শরীরে ও মননে। (ক্ষেত্রকর্ম। বিশ্বাস, ২০২৪)।

সম্প্রতি বিশ্ব বিখ্যাত পেডিয়াট্রিক্স পত্রিকায় (এই সময়, ১৫ই সেপ্টেম্বর, ২০২১, পৃষ্ঠা ৮) প্রকাশিত একটি গবেষণা

জানাচ্ছে: কোভিড কালে ১১ থেকে ২১ বছর বয়সী পড়ুয়াদের আত্মহত্যার চেষ্টার প্রবণতা বিগত বছরগুলোর তুলনায় দ্বিগুণেরও বেশি বেড়েছে। নিঃসীম একাকীত্ব শ্বাস রোধ হওয়ার জোগাড়। তর্ক-বিতর্ক, প্রশ্ন-উত্তরের যুগল সম্মিলনের নামই লেখাপড়া, যা আজ ভুলতে বসেছে সকেলেই। শোচনীয় অবস্থা বিশেষ চাহিদা সম্পন্ন শিশুদের। গৃহকোণের ভারুয়াল পড়াশোনার অত্যাচারে তাদের প্রাণ ওষ্ঠাগত। কর্মদক্ষতা ও প্রতিযোগিতার হাতেখড়ি হয় স্কুলেই। সামাজিক অনুশাসন এর প্রয়োজন এবং অপরিহার্যতা বোঝায় স্কুল। কলেজে লালিত হয় সেই অনুশাসন বাস্তবতার আলোকে, তৈরি হয় মনোবল, মনে জাগে সাহস। বাড়ির চার দেওয়ালের ঘেরাটোপের কড়া নজরদারির বাইরে বিদ্যালয় - মহাবিদ্যালয়গুলি আনন্দ নিকেতন। যেখানে একটি শিশু ও একটি উদীয়মান মানবসম্পদ প্রকৃত অর্থে মুক্ত ও গণতান্ত্রিক। পড়ুয়াদের স্বাধীনতার শত পুষ্প বিকশিত হয় শুধুমাত্র ক্লাসঘরের উর্বরা মাটিতে।

২০২৩ সালে ২৯ জন কোটায় প্রতিযোগিতার পড়ুয়া ডিসেম্বরের মধ্যভাগ পর্যন্ত আত্মহত্যা করেছে। ২০২২ এ সংখ্যাটা ছিল ১৫। ২০২০ ও একুশে কভীডের জন্য বেশিরভাগ সময়টায় অনলাইন ক্লাস হয়েছে। তার আগে ২০১৯ এও কোটায় ১৮ জন পড়ুয়া আত্মহত্যা করেছে। ২০১৮ তে কুড়ি জন এই পথ বেছে নিয়েছিল। এখনো পর্যন্ত ওই বছরই কোটায় সবচেয়ে বেশি আত্মহত্যার ঘটনা ঘটেছিল। ২০২৩ তাকেও ছাপিয়ে গিয়েছে। কোটা হয়ে উঠেছে 'সুইসাইড সিটি'! (ক্ষেত্রকর্ম। চৌধুরী, ২০২৩)।

কোটা'র তালওয়ালীতে রাধাকৃষ্ণ মন্দিরের দেওয়ালে ইংরেজি, হিন্দি, বাংলা প্রভৃতি নানা ভারতীয় ভাষায় শুধু পড়ুয়াদের প্রার্থনা লেখা। ঘটনাটা ঠিক দরগা, মাজার বা মন্দিরে যেমন মানুষ কিছু প্রার্থনা করে চাদর চড়িয়ে, কাপড় বা সুতো বেঁধে আসে, ঠিক তেমনই। কেউ তার পছন্দের আইআইটি তে সুযোগ পাইয়ে দেওয়ার কথা বলছে, কেউ নিট পাস করার প্রার্থনা করছে, কেউ ব্যর্থতার অপরাধবোধ থেকে লিখে গিয়েছে, 'মাগ্নি- পাপা সরি, মুঝে, ম্যফ কর দে'না! বাংলার ছেলের হাতের লেখা 'ঠাকুর বাবা-মায়ের স্বপ্ন পূরণ করে দাও'। ঈশ্বর হয়ত বুঝতে পারেননি তার আগেই সেই কঠিন বিদায় নীরবে ঘটে গিয়েছে।

এমনিতেই কভিডের সময় থেকেই বহু স্কুল-কলেজের খেলাধুলোর নিজস্ব মাঠ না থাকায় ক্লাসরুম শ্রেণিকক্ষে খানিকটা দৌড়ঝাঁপ করে দীর্ঘ দেড় বছরের অলস জীবন

যাপনে জমে ওঠা মেদ বরানোর কোন উপায় ছিল না তাই মানসিক এবং শারীরিক দিক থেকে এই সময়ের সমস্ত শিক্ষার্থীরাই নানাভাবে পিছিয়ে আছে। সমীক্ষা বলছে গৃহবন্দি দশায় পড়াশোনা সারা পৃথিবীতেই প্রায় লাটে উঠেছিল। শিক্ষক ছাত্রের শরীর উপস্থিতি ছাড়া ভার্সুয়াল পড়াশোনা বাস্তবিক তৃতীয় বিশ্ব বা উন্নত দেশগুলোর কাছে বাস্তবিক প্রহসন। তবু পরিস্থিতির সঙ্গে লড়াই করার যে মানসিকতা আমাদের শিক্ষক কুলের অর্জন করা উচিত বা যে সমস্ত শিক্ষক শিক্ষক শিক্ষণ মহা বিদ্যালয়ের শিক্ষার্থী তাদের অন্তত এই বিষয়টা একটু বিশেষভাবে নজর দেওয়ার প্রয়োজনীয়তা আছে।

অনলাইন বা এই চাপের পড়াশোনায় পড়ুয়ারা শিক্ষার আনন্দ থেকে পুরোপুরি বঞ্চিত। বিছানায় শুয়ে বসে ভার্সুয়াল ক্লাস বা ঠাসা রুটিনের কঠিন নিয়মানুবর্তিতার বিরক্তি কাটাতে অধিকাংশ পড়ুয়াই সমাজ মাধ্যমের বিলোল কটাফ্রে পথত্রস্ত। অসহায় অভিভাবকেরা সন্তানদের দিনরাত মোবাইলে মুখ বুজে থাকার নিয়ে দিব্যরাত্র অভিযোগ ও জানিয়ে যাচ্ছেন।

মেকিন্টোসের সাম্প্রতিক রিপোর্ট বলছে, খাস আমেরিকাতে কিন্ডারগার্টেন থেকে ১২ ক্লাসের ছাত্র-ছাত্রীরা অংকে পাঁচ মাস এবং অন্যান্য বিষয়ে চার মাস পিছিয়ে ছিল। অসমাপ্ত লেখা পড়ার কারণে পড়ুয়ারা ভবিষ্যৎ জীবনে কেমন রোজগার করবে। তাতে মার্কিন অর্থনীতির বার্ষিক ক্ষতির পরিমাণ দাঁড়াবে ১৮৮ বিলিয়ন ডলার। তড়িঘড়ি স্কুল খুলে পড়াশোনা চালু করে ও এই বিপুল ক্ষতি সামলানো কার্যত অসম্ভব। শিক্ষার্থী-অভিভাবক-শিক্ষাবিদ-প্রশাসক সকলকে আনফিনিশড লার্নিং এর ক্ষত মেরামতে সর্বশক্তি দিয়ে ঝাঁপানোর কথা বলা হয়েছে। পর্নো জগতের সাফল্যের জরুরি জ্ঞান-দক্ষতা-ব্যবহার মানসিকতার উদ্বর্তন। কোনটাই যথাযথ তৈরি হয়নি অসম্পূর্ণ, অসমাপ্ত শিক্ষার দৌলতে।

পড়াশোনা স্বাভাবিক ছন্দ ফেরাতে ও অসমাপ্ত পড়াশোনা সম্পন্ন করার জন্য আমেরিকা চালু করেছে ব্র্যাকলি এন্ড আইসক্রিম পন্থা। স্কুলছুট ছাত্রদের স্কুলে ফেরাতে একজন শিক্ষক ৩০ টি শিক্ষার্থীর দায়িত্ব নিয়েছেন, প্রত্যেকের বাড়ি যাচ্ছেন। পর পর শিক্ষাবর্ষে জুড়েছে অতিরিক্ত ২৩ দিন করে। মার্কিন সরকার অসম্পূর্ণ শিক্ষার কৃষ্ণ গহ্বর থেকে শিক্ষাকে স্বমহিমায় ফেরাতে বিশেষ অনুদান মঞ্জুর করে সামাল দেওয়ার পরিকল্পনা করেছে। আমাদের দেশের প্রেক্ষাপটে এই ভাবনা ভাবার দিন এসে গেছে।

## প্রতিবন্ধকতা আইন ও সমাজ:

কে প্রতিবন্ধী, কে না- প্রতিবন্ধী বা অ-প্রতিবন্ধী এই ধরনের মানুষদের গতানুগতিক চেতনার পিছনে প্রতিবন্ধকতা ও প্রতিবন্ধীদের কর্ম ক্ষমতা সম্পর্কে স্পষ্ট ধারণা বা বোঝার সমস্যা (প্রবলেম অফ আন্ডারস্ট্যান্ডিং) অনেকাংশে দায়ী বলে মনে করা হয়। সাধারণভাবে প্রতিবন্ধকতা যুক্ত ব্যক্তি বা তার পরিবারের সদস্যদের বিশেষ মাতা-পিতা বাইরে প্রতিবন্ধকতা বা তার সমস্যাসমূহ বোঝার দায় খুব একটা দেখা যায় না। ফলে সামাজিক পরিসরে প্রতিবন্ধী মানুষের যতটা না মানুষ হিসেবে বিবেচনা করা হয় তারা এখনো ততটা মানুষ হয়ে উঠতে পারেন না। তাই হয়তো সমাজ বিজ্ঞানের মূল শাখাতেও কিংবা শিক্ষাবিজ্ঞানের মূল অংশে প্রতিবন্ধকতা বিষয়ক চর্চা খুবই সীমিত, অনেক বিষয়ের ক্ষেত্রে উপেক্ষিত ও বলা যায়। লিপ্সগত বৈষম্য এবং মানবীবিদ্যা চর্চা কিছুটা দৃষ্টিপাত করলেও প্রতিবন্ধকতা চর্চা সেরকমভাবে নিজের খুব একটা চোখে পড়ে না বা বইয়ের মধ্যেই সীমিত।

কভিড অতিমারী ও তার পরবর্তী কালে এই বিশাল সংখ্যক মানুষেরা প্রায় সবাই নানাভাবে বঞ্চিত। শিক্ষা বা সামাজিক বিবেচনার সবদিক থেকেই এই না মানুষেরা এখন অনেক বেশি বঞ্চিত। ক্ষেত্রসমীক্ষার একটি বর্ণনা অনুযায়ী পাওয়া যায় একজন অন্ধ শিক্ষক মহাশয় ইংরেজি শিক্ষক হিসেবে যোগদান করতে গেলে তার সহকর্মীর মন্তব্য ছিল চাইলাম ইংরেজির শিক্ষক, কমিশন পাঠিয়েছে এক অন্ধকে। এই ধরনের বিচিত্র অভিজ্ঞতা সময়ের মধ্য দিয়েই পশ্চিমবঙ্গের প্রায় ২০ লক্ষ মানুষের প্রতি দিনের প্রতিবন্ধী জীবন চলছে। (এই সময়, ৭ই ডিসেম্বর, ২০২১)।

প্রতিবন্ধকতা বলতে সাধারণত দৃশ্যত কতগুলি অসুবিধা কে চিহ্নিত করা হয়, যেমন হুইলচেয়ার বা ক্রাচ ব্যবহারকারী চলন জনিত অসুবিধার শিকার, কালো চশমা সহযোগে বিশেষ ধরনের স্টিক বা লাঠি (অঙ্কের যষ্টি) হাতে সম্পূর্ণ দৃষ্টি হীনতার শিকার, অস্বাভাবিক কম উচ্চতা-সম্পন্ন অর্ধ বামন বিশেষ মানসিক অসুস্থতা, সেরিব্রাল পালসি, কানে শুনতে না পাওয়া এবং কথা বলতে না পারা, এছাড়াও আরও অনেক প্রতিবন্ধকতা আছে যেগুলোকে আমরা মেডিকেল মডেল অফ disability বা সোসিয়াল মডেল অফ ডিসেবিলিটি মধ্যে পেয়ে থাকি। দৃশ্যত অসুবিধার জন্য তাদের যেমন প্রাত্যহিক জীবনে নানাবিধ ও বৈষম্যের সম্মুখীন হতে হয় আবার যাদের অসুবিধা তেমন ভাবে

উপলব্ধি করা যায় না তাদের প্রতি দৃষ্টিভঙ্গি অস্পষ্টতা আর ও উদ্বেগের। সম্প্রতি কলকাতার এন্টালী খানায় দোভাষী অর্শ্ব সাংকেতিক ভাষার অনুবাদক এর অভাবে ধর্ষিত তরুণী গোপন জবানবন্দি নিয়ে যে টালবাহানা দেখা গেছে তা সেই অস্পষ্টতার ইঙ্গিতবাহী। যদিও সমস্ত ধরনের প্রতিবন্ধী মানুষদের অধিকার প্রদান ও ক্ষমতায়নের জন্য গত আড়াই দশকে পৃথক দু'টি আইন রচিত হয়েছে।

খাতায়-কলমে আইন রচনার মাধ্যমে ভারতে প্রতিবন্ধকতার অবস্থাকে বোঝা বোঝা সম্ভব নয়।

প্রতিবন্ধীদের পক্ষে কোনটি সম্ভব আর কোনটি আপাতভাবে সম্ভব নয় অর্শ্ব সম্ভব-অসম্ভবের সীমারেখা নিয়ে খুব একটা ভাবনাচিন্তা দেখা যায় না। বিশ্বের প্রথম সারির দেশ গুলি সুনির্দিষ্ট পরিকল্পনা গ্রহণ ও উপযুক্ত পরিকাঠামোর নির্মাণের মাধ্যমে প্রতিবন্ধকতা সম্পন্ন মানুষের ক্ষমতায়নে উদ্যোগী হলেও আমাদের দেশের আহ্বারে বেচারি কি কষ্ট কত দুঃখী ধরনের ব্যক্তিগত সহানুভূতিশীল কথাবার্তার মধ্য দিয়ে যাবতীয় দায়িত্বশীলতা শেষ করা হয়। মাঝেমাঝে অবশ্য দুই একজন ব্যক্তি বিশেষের সাফল্যে উজ্জীবিত হয়ে রোল মডেল বানিয়ে ব্যতিক্রম প্রতিষ্ঠার প্রচেষ্টা লক্ষ্য করা যায় যেমনটা প্যারা অলিম্পিক গেমসে পদক জয়ী দের ক্ষেত্রে দেখা গিয়েছিল। অথচ প্রতিবন্ধকতা যুক্ত ক্রীড়াবিদদের অনেক বিশেষ পরিকাঠামো পেলে যেই ধরনের সাফল্য পেতে পারে তা নিয়ে ইতিবাচক চেতনার অভাব ভীষণ স্পষ্ট।

তাই প্রতিবন্ধকতার স্বাভাবিক বিকাশের প্রতি গুরুত্ব আরোপ করতে পারলে অস্পষ্টতার অবসান ঘটতে পারে। শৈশবের স্বাভাবিক বিকাশের ক্ষেত্রে যেমন উন্মুক্ত পরিবেশ আবশ্যিক, একইভাবে প্রতিবন্ধকতার ক্ষেত্রে দৃশ্যমান (বিশেষ পরিকাঠামোর অভাব) এবং অদৃশ্য (নেতিবাচক মানসিকতা) বাধাগুলি অবসানের মাধ্যমে অস্পষ্টতা কিছুটা হলেও দূর হতে পারে।

## পরিবেশ ও আশঙ্কা:

বাংলায় স্বাভাবিক শব্দটি এসেছে স্বভাব.... থেকে যা স্বভাব থেকে জাত সেটিই স্বাভাবিক.....'সাপের স্বভাব যেমন মারে বিষাক্ত ছোবল' ইত্যাদি ইত্যাদি। না- মানুষ প্রাণীদের ক্ষেত্রে স্বভাব নির্ণয় অপেক্ষাকৃত সহজ। তারা অধিকাংশ ক্ষেত্রেই প্রকৃতির বেঁধে দেওয়া ছকের বাইরে যায় না। তাদের আচরণ নেচারাল। মানুষ অতি বিচিত্র- জীব তাদের বৈচিত্র

অফুরান। তার ক্ষেত্রে কি করে বোঝা যাবে, কোনটা স্বাভাবিক আর কোনটা নয়? তখনই এসে গেল গড়পড়তা আচরণে পল্ল। একটি নির্দিষ্ট সমাজে সবথেকে বেশি মানুষ যে আচরণ করে সেটিকেই স্বাভাবিক বলে ধরে নেওয়া হল। এবং সবথেকে বেশি মানুষের আচরণে ঠিক করে দিল যে সমাজের রীতি-নীতি কি হবে অর্শ্ব ইংরেজিতে যাকে বলে নর্ম অর্শ্ব নর্ম থেকে নরমাল

এমিল ডুখুইম এর মত প্রথম যুগের সমাজ তান্ত্রিকেরা বের করার চেষ্টা করলেন কোন একটি নির্দিষ্ট সমাজে একটি নির্দিষ্ট সময়ে (এটি সহজবোধ্য যে স্বাভাবিকতার কোন বিশ্বজনীন শাস্ত্র নিয়ম হয় না, তা স্থান-কালের উপর নির্ভরশীল) কোন আচরণকে স্বাভাবিক বলা যায়, এবং কোনটিকে বলা যায়না। পরবর্তীকালে অনেকে বলেন এ চেষ্টা বৃথা। প্রতিটি মানুষই অনন্য, একে অন্যের থেকে আলাদা, অতএব তাদের আচরণকে ক্ষোপবন্দি করে স্বাভাবিকতা'র আখ্যা দেওয়া নিরর্থক। হয়তো এই সমালোচনার অনেকটাই যথার্থ, কিন্তু পাশাপাশি এটাও সত্য যে একজন স্বাভাবিক মানুষ কি ধরনের আচরণ করবে তার কিয়দংশ সম্পর্কে পূর্বাভাস করা যেতেই পারে। যেমন, কোন সুগভীর বিতর্ক ছাড়াই স্বচ্ছন্দে বলে দেওয়া যায় যে বিশ্বের অধিকাংশ মানুষই রাস্তাঘাটে মূলত একটি বস্তু নিজেদের শরীর আচ্ছাদিত করবে অন্তত এখনো কিন্তু সেটাই স্বাভাবিক নিয়ম হিসেবে বহাল আছে।

যেমন আমরা নির্দিষ্টায় বলে দিতে পারি করোনাকালে ২৫ শে ডিসেম্বর রাতে আমাদের উদও মাতামাতি স্বাভাবিক আচরণের নিরিখে এটাই যুক্তিগ্রাহ্য? হয়তো বলা যেত, যদি না শিওরে করোনা নামক শমণটি দাঁড়িয়ে থাকতো।

গত কয়েক বছর ধরে অজয় সাবধানবাণী ভেসে আসছে যে মানুষ এতদিন যেভাবে চলে এসেছে সেভাবে গাছপালা কেটে, নদীনালা বুঝিয়ে, বাতাসে কার্বন ছড়িয়ে যদি চলতে চায়, অচিরেই মানবসভ্যতার অস্তিম দশায় ঘনিষে আসতে চলেছে। আচ্ছা মানবসভ্যতা না হয় বেজায় গ্রাস্তারী শব্দ, অনেকের পক্ষে বোঝা মুশকিল যে বস্তুটি খায় না মাথায় দেয়। কিন্তু এটি ও তো বেশ স্পষ্ট করে জানিয়ে দেওয়া হয়েছে যে, যেভাবে পৃথিবীর গড় তাপমাত্রা বেড়ে চলেছে, সমুদ্রতল উপরে উঠে আসছে, অনতিদূরে ভবিষ্যতে, হয়তো আমাদের সন্তানদের জীবদ্দশাতেই সাধের কলকাতা সহ একাধিক শহর ডুবে যেতে পারে জলের তলায়। তারপরেও কারো বিশেষ হেলদোল লক্ষ্য করা যাচ্ছে কি? কার্বন নির্ভর



জীবনযাত্রা এখন পাল্টে ফেলার কথা বলছি না কিন্তু কোথাও কখনো তো নিজের কাছে, ক্ষমতার কাছে, গভীরতম বিপদ থেকে রক্ষার দাবী জানানো যেত। তার লেশ মাত্র নেই..... এমনি করেই যায় যদি দিন যাক না....।

স্বাভাবিকতা নিয়ে ধন্দ্ব টা এখানেই। মানুষই একমাত্র প্রাণী যারা শুধু জিনের কারিকুরির উপর নির্ভর করে থাকেনি, তাকে অতিক্রম করে নিজস্ব ইতিহাস রচনা করেছে। কিন্তু সেই ইতিহাস ও স্বভাবগত বৈশিষ্ট্যকে মুছে ফেলতে পারেনা। প্রকৃতি শরীর নামক যে ভান্ডটি গড়ে দিয়েছে তার সীমারেখার মধ্যে ইতিহাসের লীলাখেলা। আর সেই বৈশিষ্ট্যের অন্যতম হলো, বেঁচে থাকার দুর্মর আকাঙ্ক্ষা। সেটিও শরীরের ছকেই লেখা আছে। সমস্ত প্রাণীর মতো মানুষেরও। সাধারণভাবে প্রতিটি প্রজাতি বেঁচে থাকতে চায়। তার জন্য না- মানুষ প্রাণীদের প্রধান হাতিয়ার প্রজনন ও বংশবিস্তার। মানুষ আরো উন্নত কৌশলের অধিকারী। তা সত্ত্বেও কেন অবলুপ্তির সম্ভাবনা নিয়ে এহেন আত্মঘাতী উদাসীনতা?

অনেক বিশেষজ্ঞ বলেন, মানুষ বিপদে বিমূর্ত সম্ভাবনাকে ততটা আমল দেয় না। বিপদ ঘাড়ে এসে পড়লে, একদম চর্মচক্ষে ঠাহর হলে, তবেই তল্লিতল্লা ঘটনার কথা ভাবে। তার আগে পর্যন্ত রাস্তায় ধোয়া ছড়াবে, গাছকেটে আলিশান অট্টালিকা তুলবে, নদী-নালা গতিপথ বন্ধ করে বাঁধ বানাতে, দম আটকানো ফিরে মুখোশ খুলে নাচানাচি করবে ইত্যাদি....। করোনা ভাইরাস বা বিশ্ব উষ্ণায়ন, কোনটাই তো খালি চোখে ধরা পড়ে না। শুধু তার ভয়াবহ পরিণতি দেখা যায়। সেটুকুও নাকি হুশ ফেরানোর জন্য যথেষ্ট নয়।

কিন্তু সত্যিই কি তাই? মানুষ তো বহুবার মহত্তর ভবিষ্যতের কল্পনায় স্বার্থ ত্যাগ করেছে, পাল্টে ফেলেছে ভাবনার খাঁচা। মানব ইতিহাসে এমন ঘটনা নিদর্শন অসংখ্য। আর এ কাজে তাদের সহায়তা করেছে একটি বিশেষ ক্ষমতা। .... ইয়ুভাল নোয়া হারারি তার বেস্ট সেলার 'সেপিয়েন্স: আ ব্রিফ হিস্টরি অফ হিউম্যান কাইন্ডস' এ লিখেছেন এই ক্ষমতাটা হলো কল্পিত বাস্তব বা ইমাজিন রিয়েলিটির নির্মাণে দক্ষতা। অর্থাৎ যার কোন বাহ্যিক অস্তিত্ব নেই, তেমন একটি আখ্যান রচনা। শুধু রচনায় নয় অন্যান্যদের কেউ সেই আখ্যানের অংশীদার করে তোলার সামর্থ্য। দেশ, রাষ্ট্র, সংবিধান, মতবাদ, মানবাধিকার এসবই কল্পিত বাস্তবের অঙ্গ। এই ক্ষমতাবলে বহু মানুষকে সংঘবদ্ধ করা যায়, একটি নির্দিষ্ট লক্ষ্যের প্রতি দায়বদ্ধতা তৈরি করে।

অনিক প্রাণীই গোষ্ঠীবদ্ধ, তারা দলবেঁধে একে অন্যের সঙ্গে হাত( পা ? ) মিলিয়ে কাজ করতে পারে, তবে আয়তনের সেই গোষ্ঠী খুবই ক্ষুদ্র। সেটুকু পারস্পরিক সমন্বয়, তা চেনা জানার মধ্যে। হাজারী শিম্পাঞ্জিদের উদাহরণ দিয়েছেন। কোটি কোটি শিম্পাঞ্জি যারা একে অন্যকে চেনে না তারা সকলে মিলে যুদ্ধের ময়দানে এগিয়ে চলেছে স্বজাতি রক্ষার উদ্দেশ্যে, এটি সম্ভব নয়। এখানে মানুষের জিঁ।

আবার সেই কল্পিত বাস্তব রচনার ক্ষেত্রে সীমাবদ্ধতার মধ্যে হয়তো লুকিয়ে আছে ধ্বংসের বীজ। মানুষ দেশ নামক কল্পিত বাস্তব নির্মাণ ইতিমধ্যে সিদ্ধি লাভ করেছে। খুব অল্পসময়ের মধ্যেই। কিভাবে দেশের নামে মানুষকে ঐক্যবদ্ধ করা যায় মোটামুটি দুই তিন শতকের মধ্যেই তার বয়ানটি তৈরি করা গেছে। দেশের খাতিরে মানুষ যেমন গড়েছে অনেক, তেমনই হত্যা ও ধ্বংসের তালিকাটাও সুদীর্ঘ।

কিন্তু আখ্যানের পরিধি যদি আরও বাড়াতে হয়? সেই গ্রাঙ্চারী শব্দ মানবসভ্যতার প্রতি যদি প্রতিটি মানুষকে দায়বদ্ধ করে তুলতে হয়? যদি মানুষকে বোঝাতে হয় যে গ্লোব দেশের কল্পিত সীমারেখাটি কোন সুরক্ষা -বর্ম নয়, বাইরে একটি বৃহত্তর জগৎ পড়ে আছে যার বিলুপ্তির সম্ভাবনা নিয়ে সচেতন হতে হবে? মনে হয় না মানুষ আজও সেই আখ্যান রচনা রপ্ত করতে পেরেছে! পৃথিবীর কথা ছেড়েই দিলাম, ইউরোপীয় ইউনিয়ন নামক প্রকল্পের ব্যর্থতাই প্রমাণ যে মানুষ এখনো দেশের গণ্ডির বাইরে বেরোতে পারেনি। রাষ্ট্রপুঞ্জ নামক মহতী উদ্যোগ এর অবস্থাও তখৈবচ!

আশঙ্কাটা ছিলই, নিজেকে এই বলে শান্তনা দিচ্ছিলাম যে, পঞ্চাশ ষাট বছর পর কি হবে সেটা নিয়ে আমার মাথা ব্যাথার দরকার নেই, তখন আমি থাকবো না, কিন্তু মাত্র পাঁচ সাত বছরের মধ্যে ৫০ বা ৬০ সংখ্যাটা একলাফে কমে যাবে সেটা বুঝিনি। এইতো বছর সাতেক আগে, বিশ্বের বিভিন্ন নামিদামি গবেষণা সংস্থা থেকে রিপোর্ট বের হতো, আগামী ৫০-৬০ বছরের মধ্যে সুন্দরবন বলে কিছু থাকবে না, দেশের বেশ কয়েকটি বড় শহর চলে যাবে জলের তলায়, যার মধ্যে আমাদের স্বাধীনতা মা কলকাতায় আছে। বেশ চিন্তা হত। আমি না থাকলেও তখন আমার সন্তান-সন্ততির তা থাকবে, তাদের কি হবে?

আসলে শুধুমাত্র জলবায়ু নয়, মানুষ এবং মানুষের চারপাশের সবকিছু খুব দ্রুত বদলে যাচ্ছে। আরো স্পষ্ট করে



বললে বলা যায় নিজেদের লোভ-লালসা গুলোকে চরিতার্থ করার জন্য আমরাই পরিবেশকে যন্ত্র করে হত্যা করেছি ও করছি। এই হত্যালীলার প্রত্যক্ষ প্রভাব পড়ছে আমাদের সম্ভ্রান্ত-সম্ভ্রান্তদের উপর, যারা আমাদেরই নিরন্তর ভুলের মাশুল দিতে চলেছে। প্রকৃতির কাছ থেকে সরিয়ে রেখে, আমরাই তৈরি করেছি নতুন প্রজন্মকে, যারা বিগত তিরিশ চল্লিশ বছর ধরে গড়ে ওঠা শৈশব ও কৈশোর কালের প্রাথমিক ধারাপাতটাকে ছিঁড়ে ফেলে তৈরি করেছে এক নতুন জীবন পদ্ধতি। তাদের জীবনে কোথাও প্রকৃতি নেই। তাদের নিত্যসঙ্গী এখন মোবাইল, ল্যাপটপ বা ট্যাব। আজ তারা ঘরের দরজা-জানালা বন্ধ করে প্রকৃতি থেকে অনেক দূরে এক কৃত্রিম পৃথিবীর আলো- ছায়ায় বন্দি। পৃথিবীর মত ওরাও আক্রান্ত। ভয় হয়, ওই জগতে থাকতে থাকতে ওদের অনুভূতিগুলো কি তাহলে নষ্ট হয়ে যাবে? বদলে যাবে ওদের অনুভব? বদলে যাবে ওদের স্বপ্ন দেখার চোখ?

সাধারণভাবে সমাজ জীবনের এই বদল একেবারেই স্বাভাবিক ঘটনা কিন্তু বর্তমান বিশ্বের পরিস্থিতিতে এই পরিবর্তনকে কিন্তু আর স্বাভাবিক বলা যাচ্ছে না। পৃথিবীর গড় তাপমাত্রা ক্রমশ বেড়ে যাচ্ছে, ফলে গলে যাচ্ছে হিমবাহ, বাড়ছে জলস্রব। বিজ্ঞানীরা আশঙ্কা করছেন, পৃথিবীর অনেক বড় শহর জলের নিচে চলে যেতে পারে। নষ্ট হতে পারে মাটির নিচের স্তর বিন্যাস। ধেয়ে আসতে পারে আইলা বা আফ্রান এর মত বড় বড় ঘূর্ণিঝড়। পানীয় জলের তীব্র সংকটে ভুগতে পারে মানব সভ্যতা। আমাদের স্বেচ্ছাচারী মনোভাবে তিল তিল করে আমরা আমাদের পরিবেশকে নষ্ট করেছি, যার ফল ভোগ করবে আগামী প্রজন্ম। কি হবে ওদের ভবিষ্যৎ? কেমন ভাবে বাঁচবে ওরা? এখনো কি সময় আছে ওদেরকে বাচানোর? প্রশ্নগুলো ভয়ঙ্কর কারণ এই মুহূর্তে আমরা কেউই এগুলো উত্তর জানিনা!

২০১৯ এ ভারতে, বায়ু দূষণ প্রাণ কারণে ১৬ লাখ ৭০ হাজার জন হতভাগ্যের। বায়ু দূষণ ভারতের শতকরা ১৭.৮ টি মৃত্যুর জন্য দায়ী। বাতাসে ভাসমান অতি সূক্ষ্ম ধূলিকণা পিএম ২.৫ ও ঘরকল্পার দূষণ ই মূল অপরাধী। ১৯৯০ থেকে ২০১৯ এ সুখী গৃহকোণ এর দূষণ ৬৪.২% কমলেও, ১১৫.৩% বাড়লো অতি সূক্ষ্ম ধূলিকণা জাত বায়ু দূষণ। ওজন দূষণ বাড়লো ১৩৯.২%। বায়ু দূষণ জনিত অকালমৃত্যু, অসুস্থতা ও বিকলাঙ্গতায় ভারতের অর্থনৈতিক ক্ষতির পরিমাণ ৩৬.৮ বিলিয়ন ডলার। (এই সমস্ত হাড হিম করা তথ্য দি ল্যানসেট এর ২২ শে ডিসেম্বর ২০২০ সৌজন্যে প্রাপ্ত)।

এই মুহূর্তে বিশ্বের সবথেকে দূষিত দশটি শহরের মধ্যে প্রথমটি দিল্লি চতুর্থ কলকাতা। ২০১৭ 'গ্লোবাল বার্ডেন অফ ডিজিজ' এর হিসেবে ভারতে প্রতি মিনিটে বায়ু দূষণের কারণে তিনটি শিশুর মৃত্যু হয়। গর্ভাবস্থাতেই ভারতীয় শিশুর নাভি রক্তে মিলেছে ২৮৭টি ক্ষতিকর রাসায়নিক। গ্রিনপিস ও আইকিউ এ আর এর যৌথ সমীক্ষা দেখাচ্ছে দুই হাজার কুড়ি সালে দিল্লিতে বায়ু দূষণে অকাল মৃত্যুর সংখ্যা ৫৪ হাজার। বিশ্বে এ পর্যন্ত ৫২ লক্ষ মানুষ কবিতা মারা গেছেন বায়ু দূষণে মৃত্যুর সংখ্যা ৭০ লক্ষ! নতের গুরু এক্ষেত্রে পি এম ২.৫ ।

নভেল করোনা আর পিএম ২.৫ এর ব্রাঙ্কিয়াল সিস্টেম বা ফুসফুসে হানাদারিতে প্রথমে ভাস্কুলার এন্ডোথেলিয়াম কে ফোঁপরা করেছিল, পরবর্তীকালে অক্সিজেনেটিক স্ট্রেস বাড়িয়ে নিয়ে এসেছে ফুসফুসের প্রদাহ। সাইটোকাইনস বা কেমোকাইনস এর ঝড় কালিদাসের গাছ কাটার মতো, শরীর যে ডালে বসে সেই ডাল কে কাটতে শুরু করেছে, প্রয়োজন অতিরিক্ত ইমিউন সেল তৈরি হচ্ছে। ফুসফুসের প্রাণ ভোমরা অ্যালভিওলি অক্সিজেনের অভাবে ধুকছে অহরহ। পি এম ২.৫ এর বিসক্রিয়ায় ভারতবাসীর ফুসফুস এমনিতেই ঝাঁজরা হয়ে গেছে। গোটা বিশ্বের তুলনায় তাই ভারতের শ্বাস জনিত সমস্যার সম্মুখীন রোগীর চিকিৎসায় অনেক বেশি অক্সিজেনের প্রয়োজন পড়ে। কভিডের সময়কালে অক্সিজেন অভাবে মারা গেছে অনেকেই। তারও হিসেব অজানা। আর আজ সারা ভারতের শ্বাস জনিত সমস্যার সম্মুখীন হওয়া অসুস্থ মানুষের সংখ্যা ক্রম বর্ধমান।

কিন্তু করোনাভাইরাস এ বিপদ এর পর বর্তমানে এতটা বড় মাপের চিন্তা কি আদৌ কোনো প্রয়োজন আছে? তাস্বিক কুচকুচি ছেড়ে সাম্প্রতিক একটি সিনেমার কথা আলোচনায় বলা যায়; মহাতারকা খচিত 'Don't look up' এর শৈল্পিক গুনমান ষেরকমই হোক না কেন, এই আলোচনার ক্ষেত্রে ফিল্মটি প্রাসঙ্গিক। কাহিনী সংক্ষেপ হল: জ্যোতির্বিজ্ঞানের এক অনামি অধ্যাপক এবং একজন পিএইচডি গবেষক হঠাৎই লক্ষ্য করলেন একটি বিরাট ধুমকেতু থেকে সরাসরি একটা অংশ ধেয়ে আসছে পৃথিবীর দিকে। তা পৃথিবীর বুকে আছড়ে পড়লে মানব সভ্যতার ধ্বংস সুনিশ্চিত। অতঃপর রাজনীতি, কর্পোরেট ব্যবসা এবং মিডিয়ার সমন্বয়ে এক অলীক কুনাট্য। রাজনৈতিক ও ব্যবসায়িক স্বার্থের জন্য বিজ্ঞানকে অস্বীকার, বিপদের মাত্রা লুকিয়ে রাখা কিংবা তাকে লক্ষ্য করে দেখানো ইত্যাদি। কিন্তু যেটা গুরুত্বপূর্ণ তা হল যাবতীয় বৈজ্ঞানিক সাক্ষ্য-প্রমাণ সত্ত্বেও একদল মানুষ

মানতে রাজি নয় যে এমন কিছু ঘটতে চলেছে। শেষ পর্যন্ত যখন আকাশে সেই অপার্থিব বস্তুটিকে এগিয়ে আসতে দেখা গেল, তখন হুশ ফিরল তাদের। কিন্তু ততদিনে অনেক দেরি হয়ে গেছে!

## উপসংহার:

মানুষের অস্তিম চিত্রনাট্য কিভাবে লেখা হবে? এটি কি তবে স্বাভাবিক? এই প্রশ্নের উত্তর খুঁজতে আমরা 'সার্ভাইভারসিপ বায়াস' নিয়ে যে ভাবনা শুরু করেছিলাম তারই অবতারণিকা আনার জন্য দেখতে পাওয়া যায় যে, এই বিব্রম আসতে পারে নানাভাবে। ধরা যাক, কোনো একটা সমীক্ষা সমাপন হল। কোনো বিষয়ের অনুপাত পরিবর্তিত হয়েছে কিনা দেখার জন্য কিছুদিন পরে আবার হয়তো সমীক্ষাটা করা হল। কিন্তু দুটো সার্ভেতে সমীক্ষায় অংশগ্রহণকারী মানুষজন যদি মোটামুটি একই ধরনের জনগোষ্ঠী থেকে না আসেন ফলাফল তুলনীয় হতে পারে না। 'সার্ভাইভারসিপ বায়াস' আসতে পারে জীবনের নানা দিশায় ভিন্ন ভিন্ন পথ ধরে। প্রতিটির শেকড়ের অনুসন্ধান করা দুরূহ কাজ। বাস্তবে প্রায় অসম্ভব। তাই জীবনযাত্রাকে এই ত্রাস্তিমূলক পক্ষপাতদুষ্টতা থেকে মুক্ত করার উপায় কি তা নিয়ে যদি অনুসন্ধান করা হয় তাহলে দেখা যাবে যে, নিরাসক্তভাবে আমাদের সাফল্য এবং ব্যর্থতা উভয়েরই তথ্য সংগ্রহ করা উচিত নির্ভুল অনুপাতে। যদিও এই কাজটি ভীষণই শক্ত কাজ। এই নীলগ্রহ মানুষের পৃথিবী সর্বদাই জয়ী কে বরমাল্য পরায় কিন্তু ব্যর্থতাকে নিয়ে সর্বদাই নিরাশক্ত। তাই সঠিক অনুপাতে 'নীরব প্রমাণ' সংগ্রহ করা একরকম ভীষণ কঠিন কাজ। তথাপি জীবনযাত্রার যে কোন বিষয়ে সঠিক সম্ভবনার অনুমান করতে এই 'নীরব প্রমাণ'ই সবথেকে বড় মাপকাঠি। এর জন্য প্রয়োজন আমাদের সঠিক মানুসিকতা, যা আমাদেরকে প্রশ্ন করতে শেখায়। আর দরকার আব্রাহাম ওয়াল্ডের এর মত বিজ্ঞানী প্রজা যা বিজয়ীর আপাতপ্রকাশ তথ্যের হৃদয় নিংড়ে বার করে আনতে পারে লুকিয়ে থাকা পরাজিতের ক্রটির বিচিত্র সমস্ত রকম তুলনামূলক ক্ষতিয়ান। যদিও তা অনেক কঠিন কাজ এবং উঁচুদের মানসিকতার প্রয়োজন। মানুষ সাফল্য নামক মরীচিকার পেছনে ছুটতে থাকবে, ক্লান্ত হতে থাকবে অহর্নিশি। এ পথের শেষ একদিন হবেই। অকৃতকার্য ও অসফল সাফল্যের মুখ দেখবে অনেক পথ চলার পর।

এই প্রসঙ্গে ছাত্র সমাজের প্রতি জগদীশচন্দ্র বসুর কিছু কথা খুবই প্রয়োজনীয় বলে মনে হয়। তাঁর কথায়, "ছাত্রদের মধ্যে আমি অনেক সময় ভীরুতা ও পলায়নী মনোবৃত্তি লক্ষ

করেছি। অনেকেই বিশ্ববিদ্যালয় সরকারব্যবস্থা প্রতিকূলতার উপর সবকিছু দোষ চাপিয়ে নিজের অসমর্থ ঢেকে রাখতে চায় সেটা পৌরুষের লক্ষণ নয়। বাধাবিল্ল কে সাহসের সঙ্গে অতিক্রম করতে হবে আশ্রয় করতে হবে ন্যায় কে, যাকে তোমরা পৃথিবীর সামনে অকপটে ঘোষণা করতে পারো। শক্তির রূপান্তর আছে সৃষ্টি বা বিনাশ নেই তা পরিমিত। সুতরাং যদি শুধু কথার উচ্ছ্বাসের সব শক্তি অব্যাহিত হয় তবে কর্মের জন্য তার কোন অবশেষ থাকবে না। ..... শুধু রাষ্ট্রীয় স্বাধীনতা নয় বিবেক স্বাধীনতার জন্য আমাদের নিরলস চেষ্টা করতে হবে। উত্তরাধিকার সূত্রে আমরা যে সম্ভ্যতাকে লাভ করেছি তা কয়েক হাজার বছরের প্রাচীন। ভীরুতা অনিশ্চয়তার মধ্যে যেন তা বিলুপ্ত না হয়। যুগ থেকে যুগান্তরে প্রতিধ্বনিত হয়ে আজ সবাই এসেছে ..... জীবনের আহবানে পুরুষ ও নারী রুল -ক্লিষ্ট মানুষের সেবার জন্য বিরামহীন সংগ্রামের জীবন বরণ করে নেয়। তোমরা সেই আহবানে সাড়া দেবে।"

ইউরোপে গিয়ে জাতি বিদেশের চাপে পড়ে এক সময় জগদীশচন্দ্র বসু মানসিকভাবে বিধ্বস্ত হয়ে পড়েছিলেন, সময়টার ১৯০০ -১৯০২ সাল, রবীন্দ্রনাথ ঠাকুর জগদীশচন্দ্র বসুকে মানসিকভাবে উদ্ধৃত করার জন্য অনেক চিঠি লিখেছিলেন, তারমধ্যে উল্লেখযোগ্য একটি চিঠির কয়েকটি বাক্য আজ খুব প্রয়োজন মনে হয়.... "বাধা যতই গুরুতর হোক তুমি যে ভার বহন করিয়াছ তাহা সমাধা না করিয়া তোমার নিষ্কৃতি নাই ; সেজন্য যে কোন প্রকার ত্যাগ স্বীকার প্রয়োজন তা তোমাকে করিতে হইবে.....তোমার উদ্ভাবিত সত্য একদিন বৈজ্ঞানিক সিংহাসনে অভিষিক্ত হইবে....."। সমস্ত শিক্ষার্থীদের প্রতি রবীন্দ্রনাথের সেই অমোঘ বাণী মনে রেখে এগিয়ে আসতে হবে। পরীক্ষার ভয় নয় কেবল নিয়মানুবর্তিতা ও অধ্যবসায় একদিন প্রত্যেককেই তার নিজের আসনে পৌঁছে দিতে পারবে সেই সাহস ও ভরসা নিয়ে আমাদের জ্ঞানের আলো এগিয়ে চলবে সেই জ্ঞানের আলো কোথাও থেমে যাবে না....

জ্ঞানের স্পৃহা থেমে নেই, বিষ্ণুপুরাণে পরাশর ঋষির এই বক্তব্য আমাদের প্রত্যেকটি শিক্ষক-শিক্ষার্থী ও শিক্ষানুরাগী বন্ধুদের জন্য আজও যুক্তিগ্রাহ্য ও যুগোপযোগী...

তর্কম যন্ন বন্ধায় সা বিদ্যা যা বিমুক্তয়ে

আয়াসায়্য পরং কর্ম বিদ্যান্না শিল্প নৈপুল্লাম।।

Action is that which does not attachment: that is knowledge which liberates ( one from boundage).

All other action is mere (pointless) effort/ hardship: all other knowledge is merely another skill /craftsmanship.

শিক্ষক সহকর্মীদের কাছে আবেদন:

অল্প দানম পরং দানং বিদ্যা দানং অত: পরম।

অল্পেণ ঋণিকাতৃষ্টি: যাবজীবঞ্চ বিদ্যায়া ।।

"Providing food poor and needy persons is the best charitable deed, but making people learned by teaching them is the supreme form of charity. Food gives momentary satisfaction, but knowledge will empower them to lead a satisfactory life".

শিক্ষার্থীদের প্রতি আমার নিবেদন ... বিদ্যা প্রশস্তি:

উদ্যমৈ নৈব সিদ্ধস্তি কস্যচি ন: মনোরথে:।

নহি সুপ্তস্য সিংহস্য প্রবিশন্তি মুখো মৃগা: ।।

1. Without rigorous efforts nothing can be accomplished. Just like a deer enter a lion's mouth on its own, without him going for hunt.

## 2. গ্রন্থপঞ্জী:

3. বসু বিজ্ঞান মন্দির,(২০০৮). আচার্য জগদীশচন্দ্র বসু, আচার্য জগদীশচন্দ্র জন্ম শতবার্ষিকী প্রকাশন সংস্থা, কলকাতা -৫৪।

4. Geddes, P, (1920).The Life and Works of Sir Jagadish Chandra Bose, London ; New York: Longmans, Green, 1920.
  5. Harari, Y.N,(2011). Sapiens: A Brief History of Mankind, Penguin Random House, UK.
  6. এই সময়, ৭ই ডিসেম্বর, ২০২১। Bennett Coleman & Co. Ltd.
  7. এইসময়, ৮ ই ডিসেম্বর ২০২১, পৃষ্ঠা ৪। Bennett Coleman & Co. Ltd.
  8. এই সময়, ১৯ শে ডিসেম্বর, ২০২১, পৃষ্ঠা ৮। Bennett Coleman & Co. Ltd.
  9. চৌধুরী, পি, (২০২৩)। আনন্দবাজার পত্রিকা, রবিবার ১০ই ডিসেম্বর,
  10. বিশ্বাস, এ, (২০২৪)।আনন্দবাজার পত্রিকা, রবিবার ৩ মার্চ
  11. Vivekananda, S,(1897). From Colombo to Almora: Seventeen Lectures of Swami Vivekananda, The Vyjanati Press, Madras.
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## FEATURE ARTICLE

## সঙ্গীতের প্রভাব

বিশ্বজিৎ দাস \*

হাজার হাজার বছর আগে বৈদিক যুগে, আজকের মতো রেকর্ডকৃত সঙ্গীত ঐতিহ্য ছিল না। যাইহোক, পণ্ডিতরা বিশ্বাস করেন যে সঙ্গীত বৈদিক আচার-অনুষ্ঠানে একটি অপরিহার্য ভূমিকা পালন করার সাথে আধ্যাত্মিক তাত্পর্য বৃদ্ধি করে। এতে স্তবগান, ছন্দময় আবৃত্তি এবং সম্ভবত যন্ত্র সঙ্গীতের ব্যবহার ছিল। সঙ্গীতের এই প্রাথমিক রূপটি ধর্মীয় ও সাংস্কৃতিক অনুশীলনের সাথে গভীরভাবে জড়িত ছিল, যার লক্ষ্য ছিল নির্দিষ্ট আবেগ জাগানো এবং অনুশীলনকারীদের ঐশ্বরিকতার সাথে সংযুক্ত করা।

সঙ্গীত শেখার প্রক্রিয়া মেজাজ, অনুপ্রেরণা এবং শিক্ষার্থীর স্বকীয় ধারণার ক্ষমতাকে প্রভাবিত করে, যার ফলে ফোকাস এবং তা ধরে রাখার উন্নতি হয়। সঙ্গীতের বিভিন্ন ধারা মস্তিষ্কের বিভিন্ন অংশকে উদ্দীপিত করতে পারে; উদাহরণস্বরূপ, শাস্ত্রীয় সঙ্গীত উচ্চতর ঘনত্বের সাথে যুক্ত থাকায় এই মাধ্যমটি একটি শিথিল শিক্ষার পরিবেশ তৈরি করে, যদিও কেউ কেউ এই ধারণা বিভ্রান্তিকর বলে মনে করেন। যাইহোক, এটা স্বীকার করা অপরিহার্য যে বিভিন্ন ব্যক্তি শেখার সময় সঙ্গীতের প্রতি ভিন্ন ভিন্ন প্রতিক্রিয়া দেখাতে পারেন, অতএব,

শিক্ষা ও সঙ্গীতের সাযুজ্যের জন্য স্বতন্ত্র পছন্দ বিবেচনা করা উচিত।

চিকিৎসা শিক্ষার ক্ষেত্রে সঙ্গীতকে অন্তর্ভুক্ত করাই অনেক সুবিধা প্রদর্শন করেছে। গবেষণা ইঙ্গিত দেয় যে সঙ্গীত শেখার ফলস্বরূপ, স্মৃতিশক্তি ধারণের ক্ষমতা বাড়ে, চাপ এবং উদ্বেগ দূর হয় এবং একটি ইতিবাচক শিক্ষার পরিবেশ গড়ে ওঠে। উদাহরণস্বরূপ, মেডিকেল হিউম্যানিটিজ জার্নালে প্রকাশিত গবেষণায় পরামর্শ দেওয়া হয়েছে যে মেডিকেল শিক্ষার্থীদের মধ্যে সহানুভূতি এবং যোগাযোগের দক্ষতা বিকাশে সঙ্গীত সাহায্য করে, এটি রোগীর যত্নের জন্য অত্যন্ত গুরুত্বপূর্ণ। তদুপরি, আমেরিকান সাইকোলজিক্যাল অ্যাসোসিয়েশন দ্বারা সঙ্গীত থেরাপি চিকিৎসা প্রশিক্ষার্থীদের মধ্যে বার্নআউট এবং স্ট্রেস মোকাবেলার জন্য একটি মূল্যবান হাতিয়ার হিসাবে স্বীকৃত হয়েছে। প্রখ্যাত সঙ্গীত বিশেষজ্ঞ, যেমন পদ্মশ্রী শেখর সেন, সঙ্গীত শিক্ষা এবং সামাজিক স্থিতিশীলতার মধ্যে একটি গভীর সংযোগের পরামর্শ দিয়েছেন। তার যুক্তি অনুযায়ী একটি দেশে সঙ্গীত এবং শিল্প শিক্ষা বন্ধ করা হলে অল্প

\* অ্যাসিস্ট্যান্ট প্রফেসর, দেবসংঘ ইনস্টিটিউট অফ প্রফেশনাল স্টাডিজ এন্ড এডুকেশনাল রিসার্চ

সময়ের মধ্যে সন্ত্রাসবাদ বৃদ্ধি পেতে পারে। এই ধারণাটি কেবল শিক্ষার ক্ষেত্রে নয়, বৃহত্তর সামাজিক গতিশীলতা গঠনের ক্ষেত্রেও সঙ্গীতের তাত্পর্যকে বৃদ্ধি করে।

শ্রেয়া তুলসিয়ানির "দ্য ইফেক্ট অফ মিউজিক অন লার্নিং ইন মেডিক্যাল এডুকেশন: অ্যা সিস্টেমেটিক রিভিউ"- মতো পাণ্ডিত্যপূর্ণ নিবন্ধ (2019) বা Edward A. Alpers দ্বারা "চিকিৎসা শিক্ষায় সঙ্গীতের ব্যবহার" (2014) বিষয়টিতে মূল্যবান অন্তর্দৃষ্টি প্রদান করে।

এখন বোঝার পালা চলছে, গায়কের গান বা যন্ত্রীর সঙ্গীত শুধু মনেই নয়, শরীরজুড়ে আনতে পারে একাধিক পরিবর্তন। গুপি গায়নের গান শুনে স্তব্ধ হয়ে যেতেন সকলে। সঙ্গীতের মূর্ছনায় সত্যিই কি তাই সম্ভব? মিউজিক থেরাপি নিয়ে বিশ্বজুড়ে চলছে গবেষণা। যতদিন যাচ্ছে, দুরারোগ্য রোগে এই থেরাপির আশ্চর্য গুণপনার কথা জানা যাচ্ছে। কিন্তু এর নেপথ্যে কতটা বিজ্ঞান আছে, আর কতটাই বা জড়িয়ে আছে আবেগ-অনুভূতি? নাকি গোটাটাই অতিরঞ্জন? কলকাতারই এক গবেষকের পাশাপাশি মেডিক্যাল কলেজের চিকিৎসকরা বিজ্ঞানসম্মতভাবে জানিয়েছেন সঙ্গীতের এই আশ্চর্য গুণের কথা। তামাম বিশ্বকে তাঁরা দেখিয়েছেন— ভারতীয় শাস্ত্রীয় সঙ্গীত পারছে মানুষের ইসিজি, প্রেসার ও নাড়ির গতিতে পরিবর্তন আনতে!

সঙ্গীত এবং শরীরে তার প্রভাব নিয়ে দীর্ঘ দু'দশকেরও বেশি সময় ধরে কাজ করছেন সঙ্গীত

গবেষক আচার্য সঞ্জয় চক্রবর্তী। সঞ্জয়বাবু এবং দিল্লি এইমস-এর চার চিকিৎসক যৌথভাবে এই গবেষণাটি করেছেন। তা গ্রহণ করেছে বিশ্ববন্দিত পত্রিকা গোষ্ঠী এলসেভিয়ারের 'বায়োমেডিক্যাল সিগন্যাল প্রসেসিং অ্যান্ড কন্ট্রোল'। এইমস-এর ট্রান্সপ্ল্যান্ট ইমিউনোলজি অ্যান্ড ইমিউনোজেনেটিকস এবং ফিজিওলজি বিভাগের এই চার চিকিৎসক হলেন পরীক্ষিত সান্যাল, কৌশিক রায়, দীনু এস চন্দ্রন এবং কে কে দীপক। গবেষণাপত্রটি তিনবার রিভিউও করেছেন বিশ্বের বহু তাবড় বিজ্ঞানী।

সেতার বা চিত্রাবীণা নিয়ে হয়েছে গবেষণাটি। তারই অংশ হিসেবে সেতারে আড়াই মিনিট 'বিলাওয়াল' নামক ঠাটের অংশবিশেষ বাজিয়ে তা রেকর্ড করেন সঙ্গীত গবেষক সঞ্জয়বাবু। সে দু'টি ছিল শুদ্ধ এবং শুদ্ধ ও কোমলস্বর মিশ্রিত ঠাট। ২৫ জন স্বেচ্ছাসেবকের সামনে বিভিন্ন সপ্তকে বাজানো হয় সেগুলি। ততক্ষণে হিরুচি নামের টেকনিকে তাঁদের হাতে বেঁধে দেওয়া হয়েছে বিশেষ যন্ত্র। সমীক্ষা শুরুর আগে অহেতুক উদ্বেগ-উৎকণ্ঠা কমাতে 'ডিপ ব্রিদিং' করতে বলা হয় প্রত্যেককে। এরপর রেকর্ড করা শুরু হয় প্রত্যেক স্বেচ্ছাসেবীর প্রেসার, নাড়ির গতি এবং ইসিজি।

কী হল তার ফলাফল? দেখা গেল, সঙ্গীতের সংস্পর্শে আসতে না আসতেই ওই ২৫ জনের প্রেসার, নাড়ির গতি এবং ইসিজিতে ফারাক ফুটে উঠতে শুরু করল। মৃদু ও চড়াভাবে বাজানো সেতারের ফারাকও বুঝিয়ে দিল শরীর। সঞ্জয়বাবু বলেন, 'আমরা দেখেছি মৃদু স্বরে বাজানো সঙ্গীত



শরীরের উপর বেশি ইতিবাচক প্রভাব ফেলছে। তারস্বরে বাজানো সঙ্গীতের প্রভাব কম। এরপর আমাদের লক্ষ্য হল, বিজ্ঞানসম্মতভাবে কোন রোগে, কী ধরনের শাস্ত্রীয় সঙ্গীত, কীভাবে কাজে আসতে পারে, তা নির্ণয় করা। আসলে ভারতীয় মার্গসঙ্গীত প্রকৃতির দর্পণ। মানবশরীরও প্রকৃতিরই অংশবিশেষ। তাই সাড়াও দিচ্ছে শরীর।

সঙ্গীত শেখানোর কিছু গুরুত্বপূর্ণ অভিজ্ঞতার দুইটি উদাহরণ নিচে সংক্ষেপে বর্ণনা করা হয়েছে।

**Ex no. 1- 2015 December:-**

একটি মেয়ে যে (C.A) পরীক্ষার প্রস্তুতি নিয়েছিল। তার পরিবারের দাবি ছিল তাকে সেই পরীক্ষায় উত্তীর্ণ হতেই হবে। পরীক্ষার ফলাফল বের হলে মেয়েটি পরীক্ষায় সফল হতে পারে না। মানসিক চাপে সে আত্মহত্যার চেষ্টা করে। সেই অবস্থা থেকে মেয়েটি সঙ্গীত গুরুর সঙ্গে যোগাযোগ করে, সব কিছু শোনার পর গুরু তাকে সঙ্গীত শেখার পরামর্শ দেন। প্রায় এক বছর সে সঙ্গীত শিক্ষা গ্রহণ করতে থাকে এবং (C.A) পরীক্ষায় উত্তীর্ণ হয়ে তার পিতামাতার স্বপ্ন পূরণ করে। সঙ্গীত শেখা চলা কালীন আরো দুটি পরীক্ষায় উত্তীর্ণ হয়। আজ সে তার যোগ্যতা অনুসারে ব্যাঙ্গালোরে একটি ভালো সংস্থায় চাকরি রত। সেই সময়ে চাপ থাকা সত্ত্বেও, শুধুমাত্র সঙ্গীত তাকে স্থির হতে সহযোগিতা করে, এবং তাকে তার লক্ষ্যে পৌঁছে দেয়।

**Ex no. 2- 2022 October:-**

একটি ছেলের যন্ত্র সঙ্গীত শিক্ষার জন্য, তার পরিবার শিক্ষকের সঙ্গে যোগাযোগ করে। উপস্থিত হয়ে তিনি জানতে পারেন ছেলেটির বয়স ৩৭ বছর। যন্ত্রসঙ্গীত শিক্ষা শুরু হয় এবং কিছুদিনের

মধ্যে তিনি জানতে পারেন যে ছেলেটি সিনোফেনিয়া (Organic Psychosis vs Schizophrenia) নামক একটি রোগে আক্রান্ত সেই অনুযায়ী তার সমস্ত শিক্ষার ব্যবস্থা একটু আলাদা রকম ভাবেই করতে হতো। তার পরিবারের কাছ থেকে জানতে পারেন যে ছেলেটি সপ্তাহে বেশ কয়েকবার উত্তেজিত হয়ে ওঠে এবং বাড়ির সমস্ত ব্যক্তির উপর চড়াও হয়। এই মতো অবস্থাতে শিক্ষকের মনে হয়েছিল হয়তো তাকে শিক্ষা দিয়ে উঠতে পারবেন না। কিছুদিনের মধ্যেই শিক্ষা চলাকালীন তার মধ্যে কিছু পরিবর্তন লক্ষ্য করা গেল। এক বছরের সময় কালে ছেলেটি তার ব্যবহারের পরিবর্তন আনেছে। এবং তার যেকোন বিষয় নিয়ে অতিরিক্ত চিন্তা যেন সমাপ্ত হয়ে গেছে। যখনই এই ধরনের অসুবিধার সম্মুখীন হত, সে তার বাদ্যযন্ত্র নিয়ে নিজের মত করে অভ্যাস শুরু করতো। দেখা গেল, যে ছেলেটি প্রতি সপ্তাহে বেশ কিছু বার উত্তেজিত অর্থাৎ এগ্রেসিভ হয়ে উঠতো সেটি বন্ধ হয়ে গেছে এবং বছরে তার সেই অসুবিধাটা মাত্রকয়েক বারের জন্য দেখা যাচ্ছে, এই পরিবর্তনে তার পরিবারের প্রত্যেকটি মানুষ এত বেশি খুশি ছিল যে ছেলেটির ব্যবহারের পরিবর্তনের বিষয় শিক্ষকের সঙ্গে আলোচনা করেন এবং সেই অনুযায়ী শিক্ষা দেওয়ার প্রচেষ্টা চলে। বর্তমানে তার মধ্যে যে পরিবর্তন এসেছে, শুরুর দিনগুলোতে তার হাতে একটি অসুবিধা ছিল হাত কাঁপতো, সে বলতে গেলে মুখ থেকে লালা ঝরতো, এবং কোন শব্দকে সে যোগ সূত্রে বাধতে পারত না বর্তমানে সে তার বাদ্যযন্ত্র দিয়ে যেকোনো গান বাজানোর ক্ষমতা রাখে বা যেকোনো গান বাজাতে সে সক্ষম।

সবশেষে বলা যেতে পারে যে "শব্দই ব্রহ্ম" যেটি প্রস্তাব করে যে "শব্দ" বা তরঙ্গ বা সঙ্গীত তরঙ্গ হল

ঐশ্বরিক সৃজনশীল শক্তি, ব্রহ্মার প্রকাশ, যা কম্পনের মাধ্যমে মহাবিশ্বকে অস্তিত্বে নিয়ে আসে। এটি সৃষ্টি এবং আধ্যাত্মিক অনুশীলনে শব্দের গুরুত্বের উপর জোর দেয়।

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## READERS' FORUM

## Swami Vivekananda's Vision on Education for Youth and its Reflection on NEP 2020

Dr. Kaberi Saha \*

Swami Vivekananda (12<sup>th</sup> January, 1863- 4<sup>th</sup> July, 1902) a universally acclaimed saint of mother India whose life was a combination of oriental and the occidental, the past and the future, traditional and modernity, science and spirituality as well as education. He has touched all the areas of human development and connected the East and West by preaching Vedantic philosophy. Swami Vivekananda travelled intensively throughout our country as well as abroad and could visualize and compare many things among the masses of India, their sorrow, pain and the socio-economic condition of the people. Swamiji was very disappointed thinking about the condition of the citizens of our country and realized that their emancipation from the abject state of living lies in the re-generation of an educational system. He observed that most of the citizen of our country were illiterate and very few of them are so called literate by the Western system of education which were preparing the people only for job. Then he realized that the system of education which were the Indian people getting during his time was not bad but not complete or holistic education which can help in all round development of individual. Education was more or less career oriented and gave little scope for cultivation of virtue and disciplining our mind. It also did not teach self-control and self-development as well as develop harmony with others. That education also did not help in inculcating values truthfulness, honesty, love, compassion which are the main components of a true human being.

The educational system which was prevailing that time led to many adverse tendencies as well as bondages among our youth in spite of propagating to liberate the human mind. Swamiji realized that education is to liberate one from negative tendencies and ignorance about one's real 'Self'. Our epics also gave importance on 'Vidya' (Learning or knowledge) in place of 'Avidya' (Ignorance

or non-knowledge) and in turn it will develop Atma Vidya (Knowledge of self). Swamiji also realized the same and thought that there was an urgent need of having a perfect education system which could help in developing a true human being and in turn they would be able to eradicate all social evils. Thus, he developed his philosophy of education based on the Vedantic vision of the innate divinity of human beings which will help in Holistic development of the individual.

Swamiji was not an educational philosopher but his ideas to uplift the human beings have a deep philosophical value. His ideas are not based on religious doctrine and dogmas but in the real nature of man when he says "Each soul is potentially divine. The goal is to manifest this divinity by controlling nature, external and internal. Do this either by work or worship or psychic control or philosophy- by one or more or all of these- and be free". At the same time, a he stressed the integrated and harmonious development of human being who can lead a life of harmony and peace. He also gave importance on the pursuit of both worldly and spiritual knowledge for holistic living. Thus, his philosophy relates to the development of the total man, but not the outer man of just flesh and blood, but the inner man of flesh and spirit, extending towards the infinite world beyond space and time. Swamiji, in his period visualize the nature of the youth and clearly understood that the mankind was passing through a crisis. The most of the youth of that generation was found to be very weak both physically and mentally possessing low self-esteem, lack of courage, moral and spiritual values and very weak personality. He was very sad and could realize a weak body and mind which was the hindrance for the development of self as well as the society. Thus, he gave his beacon call, "Be strong, my young friends; this is my advice to you. You will be nearer to heaven through football than through the study of Gita-

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you will understand Gita better with your biceps, your muscles a little stronger.” (Vol-3). Swamiji was also a great advocate in bringing social changes. He understood very well that enormous energy and will power be needed to bring such changes hence to called upon the youth to have good physique along with their sharp intellect. So, he said to have youth having ‘muscles of iron’ as well as ‘nerves of steel’ so that the youth can face the challenges that tie ahead. That is why he addressed the youth saying that “All the power is within you, you can do anything and everything. Believe in that, don’t believe that you are weak, stand up and express the divinity with you.”

Swamiji was not at all satisfied with the prevailing system of education in our country as the system of education was based on western culture which was prevailing throughout the world and was concentrated on “the learning to do” aspect rather than “learning to be”. That education ignores the innate divinity, the self within and focuses on rote memorization which in turn lacks of focus on concentration of mind, unfoldment of the innate perfection, peace and happiness of self which is directly responsible for the lowering of character and values of our youth. Most of the countries of the world are ignoring ‘man making’ pursuits of education. The acquisition of higher marks and acquisition of wealth which make the students more competitive than co-operative. The result is chaos due to this cut-throat competition. Lack of higher perspective of life our system of education is producing so called educated who are highly self-centred and can’t think for the betterment of society.

Swami Vivekananda was very much anxious about our youth as the modern education though it had many positive aspects but still it failed to teach some basic human values like inculcation of self-control, to develop brotherhood, does not instil the values of truth, honesty, love, compassion which help in giving holistic education. The most dangerous part of modern education is that they are promoting negative emotions as well as help one to camouflage one’s weakness and wrong doings.

After Swami Vivekananda, long period has been passed particularly in India having different committees and commission on Education which recommended many things based on the suggestions given by the great philosopher of our country and abroad. India is developing day by day in all the sectors like education, industry,

economy etc. and going to become a super power within few years but at the cost of our past glory, as well as our value system. In the 21<sup>st</sup> century also if we analysed the modern education system, we will see that though our youth are excelled in all the field and bringing laurel to our country, but our youth is losing their values like respecting their parents, teachers, downtrodden masses, women, aged and the fellows. The system of education does not help our youth to face challenges, become fearless, self-confident, self-reliant and a youth of values, honesty empathy etc. As a result, many youths of our country in spite of having best quality education are suffering from anxiety, depression and when they encounter with different types of challenges they become frustrated and committed suicide.

Swamiji has rightly pointed out that “Education is not the amount of information that is put into the brain and runs riot there, undigested, all your life. We must have life-building, man-making, character-making assimilation of ideas” which is quite relevant for today also. Swami Vivekananda realize long ago that education should be liberal and always include conservative and creative aspects and bring about change in society by giving us progressive ideas and new values of life and science and religion should go hand in hand. So, Swamiji said the aim of education should be to help him grow from the animal to the divine state, through self-effort, self-realization and proper training. Such type of human being to be produced by education who is compassionate as well as intelligent, great in heart and great in mind and who by dynamism can bring about positive change in society.

From the writings of Swami Vivekananda many interesting quotes can be read which are still relevant for the modern youth of 21<sup>st</sup> century. Swamiji said, “If you have five ideas and made them your life and character you have more education than any man who has got by heart a whole library..... the ass carrying its load of sandalwood knows only the weight and not the value of the sandal wood. If education is identical with information, the libraries are the greatest sages in the world, and encyclopaedias are the Rishis.” Therefore, Vivekananda says “The end of all education, all training, should be man making. The aim of all training is to make the man grow. The training by which the current and expression of will are brought under control and become fruitful is called education....” Swamiji also talked about the need of western thoughts science and technology but at the same time he cautioned

his countrymen by saying that ‘what we want are western sciences coupled with Vedanta’s, Brahmacharya as the guiding motto and Shraddha in one’s self. (Vol- v, pp- 36).

Swami Vivekananda said many things for the holistic development of our citizens. His words are inspiring and motivational for our citizen particularly for our youth. His educational philosophy now a days have been attracted by the different philosophers of our country as well as in abroad. His philosophy has been nicely reflected in the New Education Policy (NEP 2020). When we see the very first line as “Education is fundamental for achieving full human potential. Thus, NEP envisions on education system rooted in India ethos that contributes directly to transforming India that is Bharat sustainably into an equitable and vibrant knowledge society, by providing higher quality education to all and nearby making India a global society. Thus, the principle objectives of NEP are to instil among the students and the learners a deep rooted and genuine pride in being an Indian not only in thought but also in action intellect and spirit and develop knowledge, attitude skills, values, discipline etc. Most of the educational philosophies of

Swami Vivekananda have seem to be reflected in the NEP 2020 document.

Thus, we can hope that by imbibing Swamiji’s profound thought in our NEP 2020, India can achieve its lost glory and become a leading country in the world.

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## READERS' FORUM

## Teaching through Media and Technology

Dr. S. Saisandhiya \*

**Abstract**

*In today's digitally driven world, the integration of media and technology in educational practices has become imperative. This article explores the significance and impact of incorporating various forms of media and technology in teaching. It discusses how multimedia tools, interactive platforms, and digital resources can enrich the learning experience, catering to diverse learning styles and preferences. Drawing on recent research and case studies, the article elucidates the benefits of using media and technology to facilitate active engagement, foster critical thinking, and promote collaborative learning environments. Additionally, it addresses challenges such as digital divide and information overload, offering strategies to mitigate these barriers. By examining the transformative potential of media and technology in education, this article advocates for their strategic integration to enhance pedagogical practices and prepare learners for success in the digital age.*

Key Words: Pedagogy, Enhancement, Media, Technology, Teaching

**Introduction:**

The use of media and technology in the classroom has been considered highly helpful to bridge the distance between instructor and students, between students and texts, and between students' of various skill levels, in effective and innovative ways. The principle for using technology successfully in the classroom, however, is no different from those for assignment design in the traditional classroom. Learning goals and grading rubrics must be clear and transparent; instructions and expectations ought to be conveyed in a straightforward manner; workload needs to be reasonable and the relevance of the activity must be explicit; feedback should be timely. In other words, instructors should think about what the technological tool

hopes to achieve pedagogically before implementing it in the classroom.

In the rapidly evolving landscape of education, the role of media and technology has become increasingly prominent. Traditional pedagogical approaches are being reshaped as educators harness the power of multimedia tools, interactive platforms, and digital resources to engage learners in new and innovative ways. This article delves into the transformative potential of integrating media and technology into teaching practices, exploring how these tools can enrich the learning experience and prepare students for success in the digital age.

The advent of digital technologies has revolutionized every aspect of our lives, including education. From virtual classrooms to online learning platforms, the possibilities for incorporating media and technology into teaching are vast and varied. As educators navigate this digital terrain, it is crucial to understand not only the benefits but also the challenges and opportunities that arise from this integration.

This article aims to provide insights into the ways in which media and technology can enhance pedagogy. By examining recent research findings, case studies, and best practices, we will uncover the myriad ways in which multimedia tools and digital resources can facilitate active learning, foster critical thinking skills, and promote collaboration among students. Additionally, we will explore strategies for overcoming obstacles such as the digital divide and information overload, ensuring that all learners have access to the benefits of technology-enhanced education.

As we embark on this exploration, it is important to recognize that while media and technology offer tremendous potential, they are not a panacea for all educational challenges. Effective integration requires thoughtful planning, ongoing professional development,

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and a commitment to equity and inclusion. By embracing the possibilities of media and technology while remaining mindful of the complexities involved, educators can harness these tools to create dynamic and engaging learning experiences that prepare students for success in the 21st century.

### Teaching in Technology:

The term “technology” refers to advancements in the methods and tools we use to solve problems or achieve a goal. In the classroom, technology can encompass all kinds of tools from low-tech pencil, paper, and chalkboard, to the use of presentation software, or high-tech tablets, online collaboration and conferencing tools, and more. The newest technologies allow us to try things in physical and virtual classrooms that were not possible before. What you use depends fundamentally on what you are trying to accomplish.

Teaching with technology has the propensity to deepen students learning by supporting instructional objectives. However, it can be challenging to select the “best-tech” tools while not losing sight of the goals for students’ learning. Once identified, integrating those tools can itself be a challenge albeit an eye-opening experience. The CTL is here to help you (novice, expert and everyone in between) find creative and constructive ways to integrate technology into your class. If you are looking to flip your class, make use of Canvas or simply want technologies, we can help.

### Use of Technology

The use of technology is increasing day by day, we all depend on technology and we use various technologies to accomplish specific tasks in our lives. Today we have various emerging technologies which impact our lives in different ways. There are different popular instruments for teaching these days. Some of these are discussed hereunder.

- An interactive white board (IWB) is an instructional tool that allows computer images to be displayed onto a board using a digital projector. The instructor can then manipulate the element on the board by using his finger as a mouse, directly on the screen.
- Blogs is type of website or a part of website. Blogs are usually maintained by an individual with regular entries

of commentary, description of events, or other material such as graphics or video. Blogs can also be used as a verb, meaning to maintain or add content to a blog.

- A wiki is a web site that allows users to add and update content on the site using their own web browser. A great example of a large wiki is the Wikipedia, a free encyclopedia in many languages that anyone can edit. The term “wiki” comes from the Hawaiian phrase, “wiki, wiki” which means “super-fast”.

### Teaching in Media:

Media can be a component of active learning strategies such as group discussion or case studies. Media could be a film clip, a song you hear on the radio, podcast of a lecture or newspaper article. Students can also create their own media. For example, student video projects can be a powerful learning experience. The use of media enhances teaching and learning complements traditional approaches to learning. Effective instruction builds bridges between students’ knowledge and media **engages students, aids student retention of knowledge, motivates interest** in the subject matter, **and illustrates the relevance** of many concepts.

Facebook is a popular free social networking website that allows registered users to create profiles, upload photos and video, send messages and keep in touch with friends family and colleagues. Similarly, Twitter is a free social networking micro blogging service that allows registered members to broadcast short posts called tweets. To weave tweets into a conversation threads or connect them to a general topic, members can add hash tags to a keyword in their post.

### Conclusion:

In conclusion, the integration of media and technology presents an unparalleled opportunity to revolutionize pedagogical practices and enhance the educational experience. As evidenced by the myriad benefits discussed throughout this article, leveraging multimedia tools, interactive platforms, and digital resources can foster a dynamic and inclusive learning environment. By catering to diverse learning styles, promoting active engagement, and facilitating collaboration, educators can effectively prepare learners for the demands of the digital age.

However, it is essential to acknowledge and address challenges such as the digital divide and information overload to ensure equitable access and maximize the potential of media and technology in education. Moving forward, continued research, innovation, and collaboration are crucial to harnessing the full transformative power of media and technology in teaching, ultimately empowering learners to thrive in an ever-evolving global landscape. The timing has never been better for using technology to enable and improve learning at all levels, in all. Conclusion and recommendation....teaching and learning through media and technology have never been greater.

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## READERS' FORUM

## Creating Personalized Learning Environment for Future Learners

G. Sekar \*

### Abstract

*In the rapidly evolving landscape of education, the concept of personalized learning has gained considerable traction as a means to address the diverse needs and learning styles of individual students. This abstract explores the imperative of creating personalized learning environments tailored to the needs of future learners. By leveraging advancements in technology, pedagogy, and cognitive science, educators can design adaptive learning experiences that cater to the unique preferences, abilities, and interests of each student. Through the integration of artificial intelligence, data analytics, and interactive learning platforms, personalized learning environments offer opportunities for students to engage in self-directed learning, receive targeted support, and progress at their own pace. Moreover, such environments foster a culture of inclusivity, enabling students from varied backgrounds and abilities to thrive academically. This abstract discusses key principles and strategies for implementing personalized learning environments, including the importance of teacher facilitation, the role of feedback mechanisms, and the ethical considerations surrounding data privacy and equity. By embracing the paradigm shift towards personalized learning, educators can empower future learners to reach their full potential and cultivate a lifelong love for learning*

**Key Words:** Personalization, Adaptive learning, Future learners, Technology integration, Individualized instruction

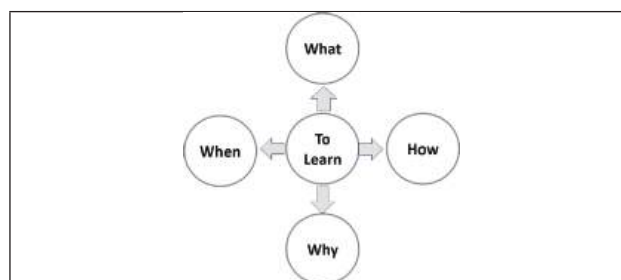
### Introduction

Learners, the end users of teacher-learners process varies by different factors such as styles, pace, understanding levels and so on. Traditional (or) conventional methods of T-L process created a strong misconception that the modules they followed fits for every kind of learners and the students (or) learners has to run through the common track (or) phase, equip themselves accordingly. In this

present scenario the influencing factors of learning such as are not taken into account and they are forcibly (or) made compulsory to follow the common curriculum and made to believe that it suits all the cadres of learners. Those learners who are not able to environment are found as defaults and the faults are traced with the learners not on the system (or) strongly of learning process.

### Future Learners:

In upcoming 21st century, the learners cannot be matched with a decade ago learners, as they are in the era knowledge, technologies and the usage of techno-application. In the growing phase of ICT, their application in the field of education has revolutionary basic system of education which has broken the boundaries of that existed for 20th century learners. The future learners, who have more exposure due to fast growing science and technologies in the world decides, (i.e.), the reason behind the courses and how they are going to help to face the competitive world outside. Also with advent of new technologies, the learners of future of new technologies, the learners of future have to face the challenges such as the learning they undergo or the courses they undertake has to equip them to face the global competitions, develops the skill sets required by the job market and create an all-round harmonious personality to be good citizen to the world. Thus, these demands put risks or the pressure on the learners in various ways them to face the challenges in the world.



**Fig-1: Attitude of 21st Century Learners**

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## Learning Environment –A Change In Need

Learning environment does not literally mean the bricks and mortar where the learning occurs but the holistic view that consists of

- The learning content.
- The learning strategy and activities.
- The learning style and the assessment.

The kind of learning environment practiced all these years are of monotonous in nature, more teacher centric, involves more verbal interactions and do not consider the parameters of the learners. The learning environment created and followed needs a drastic change or modification that should cater the need of each and every individual learner, satisfy the requirements of the society and the world and incorporates the skills demanded by the job market and equip them to face the competitive world.

In the present learning environment, the tasks or the level of achievements are pre-defined and not renovated as per the need of the hour i.e. does not correlate with the growth of science and technology or the industrial needs. Also, the individuals who lag or slow in progress are left behind or remain as stagnation which results in wastage of human resources. This situation occurs due to the evident facts that there are -

- No special learning tracks for slow pacers.
- Lack of remedial measures along with the learning process.
- Lack of separate methodologies for making the learners to attain at least minimum level of learning.

## Personalized Learning Environment-A Revolutionizing Phenomena

Personalized learning- an emerging trend gives support to the student- centered 21st century teaching and learning. Researches reveals that the overall student achievement likely to increase when the learners are able to learn at their own pace with a variety of teaching styles and formats made available to them. So, the personalized learning environment is relatively new phenomenon in the learning domain motivated by

- The need of life long-learners for system that provides

a standard interface to different institution's learning systems, and that allows portfolio information to be maintained across institutions

- The response to pedagogic approaches which require learning systems need to be under the control of the learners themselves.

Personalizing, the learner's education enables to access a unique learning experience based upon their individual needs, rather than receiving instructions through a standard, paced curriculum. Also PLE strongly emphasis on parental involvement and meaningful student- teacher-parent relationships, and technology is often utilized to enhance learning opportunities. So the personalized learning environment can be defined as the self-directed and evolving environment can be defined as the self-directed and evolving environment of tools, services and resources developed by a person seeking a way to accomplish life time learning, to create and to connect with others of similar interests.

In PLE, there exist various models which help to be more self-directed and collaborating with all learning techniques. Some of the models are as given below.

- **Generic Model:** describes by Milligan where the focus is on learn with other learners, control their learning resources, manage the activities they participate in and integrate their learning with various resources.
- **Collecting-Reflecting-connecting-Publishing Model** – created by Jeremy Hibert where the resources are gathered from various ways and stored, the information's verified that they are in recent trends, integrates and cooperates with various stakeholders and gives the attainment levels to be known to everyone.
- **The four C's Model** – created by Chris Sessums which consist of activities such as collect, communicate, create and collaborate. Here PLE serves as an activity hub and informed by the individual learners (node) and activities collectively (network).
- **Gathering- Processing – Acting Model** – created by Michele Martin that consists of cognitive steps of processing and taking action.

Thus, these models of PLE create a historic opportunity to expand access and boost achievement and completion for learners across the globe. As the PLE- the student



centric that address the unique needs of learners, the teachers possess powerful tools to personalize instructions and utilize the real time-data for feedback to find what each learner need. The role of teachers get modifies into different forms such as -

- **Learning facilitator** – the instructors i.e. the teachers supports the learners and sees that the learners keeps up the learning tasks without any stagnation and provides technical support.
- **Remediator** – as the learners may fail to attain the goals set in PLE, the teachers should act as trouble shooters who eradicates the learning disconnect and provide alternate solutions.
- **Enricher** - the teachers has to provide enrichment activities beyond the contents provided in PLE that they have gained which would turn as additional knowledge to the learners.
- **Collaborator** – the technology enriched education future makes the teachers to collaborate the students learning with real world activities which help the learners to develop marketable skills to face the future world.

As the next generation movement grows in a fast and rapid manner, the teachers has to play a crucial role in the implementation and success of new and innovative technologies. Thus, these adaptive technologies hinge the ability of teachers to adapt and thrive in these changing times.

## Challenges For Personal Learning Environment

The challenges in creation of the revolutionizing technological innovation-the personalized learning environment are as explained below.

- Digital divide- the divide that caused between the learners who have access to the technology such as PC, Internet and so on and who have not, the learners who have basic skills in usage of technology and have not's.
- Organizational support- the institutions should be ready to adapt to creature personal environment fore every individual learners of their every individual learners of their own where moral and monetary support needed to implement PLE.

- Attitude of teachers- the teachers has to adapt to the innovative techniques that changes their role from dispensers of knowledge to promulgators or facilitators of knowledge to the learners. Also they have to equip themselves to use of technology and way to guide the learners to use them.

Thus, these challenges has to be over powered in Indian context, to make successful implementation of PLE to crate the learning personalized or individualized that satisfy the real need of every learners.

## Conclusion

PLE-the innovative technological technique, caters the individual needs of every learner where it gives freedom to choose the content of study, the pace of the study and ultimately the goals to reach to face the challenging and competitive world. Thus, the technological incorporated innovation-PLE changes the face of education system to learner-friendly that focuses and enhances the capabilities of each and every learner in the society.

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## BOOK REVIEW

## “The Rediscovery Of Teaching”

Prof. (Dr.) Taposh Ghoshal\*

‘The Rediscovery of Teaching’ is one of the most commended educational trilogy and a milestone for the post-neoliberal era in education. Authored by Gert J. J. Biesta, Professor of Education and Director of Research at the Department of Education of Brunel University London, UK., the book, published in 2017 by Routledge in London and New York, explores profoundly as to what it means to be a teacher and what it means to exist as a teacher and urges readers to rethink and rediscover teaching as a fundamental process for shaping the human minds.

The book is based upon Biesta’s innate views about the changing meaning of teaching in today’s world. Biesta states that the real issue today is not whether teaching matters; the real issue is how teaching matters and what teaching matters for. He states that in recent years, the role and position of teaching and the teacher have been challenged from different factors wherein the conventional definition of teacher and teaching has shifted radically from being a “sage on the stage” to a “guide on the side” – a facilitator of learning.

Biesta, internationally renowned as a philosopher of education, argues that today, there is a need to rediscover teaching as well as the teacher from a pedagogical point of view. He says that it is time to free teaching and teachers from what he considers to be a too narrow psychological interpretation fixed on increasing measurable learning outcomes on the side of the students. The rediscovery of teaching, he believes, is about seeing teaching in a newer way, and the recovery of teaching in the sense of healing or re-establishing it, or re-valuing it as a defensible, necessary, and essentially value-based and valuable practice.

Biesta’s thoughts are organised in the book in five chapters, each reflecting on a distinct facet of his valued thoughts. In Chapter 1 titled ‘*What Is the Educational Task?*’, Biesta asks the question what education is *for* and, more precisely, what there is for teachers, as educators, to

do. The author states that the mission of an educator is to make the grown-up existence of another human being possible by arousing the desire in another human being for wanting to exist in the world in a grown-up way. He describes what it means to focus on education on the question of existence, what it means to exist in the world, and what it means to exist there in a grown-up way. He offers an understanding of grown-up-ness that doesn’t see it as the outcome of a developmental or educational trajectory but somewhat as a way of existing in and with the world in a respectable manner. He explains what the focus on this question requires from the teacher and explores the implications for our understanding of the role of authority in education.

In chapter 2, *Freeing Teaching from Learning*, the author suggests that learning is only one of the existential possibilities people have as human beings, and that teaching, if it is aimed at the grown-up subject-ness of the student, should actually endeavour to open up other possibilities for students to exist in and with the world – other, that is, than in terms of learning. In addition to an exploration of the literature on the relationships between teaching and learning, he describes a condition where students try to relate learning, sense-making and understanding.

In chapter 3, *The Rediscovery of Teaching*, Biesta enquires whether interpretation and sense-making are indeed essential to the way in which we are in and with the world. The chapter is built around a close reading of insights from the work of Emmanuel Levinas, particularly with regard to the theme of sense-making or, in his terms, denotation. Against the idea that human beings are basically “meaning-making animals” – an idea, he explores in more detail the nuances of the subject to have a deep, thick and holistic understanding of the same. Biesta also says that one can start visualising education as aimed at the freedom of the student, education aimed at emancipation, is not to be

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understood as education that tries to keep all influences away from the student.

The role of teacher in emancipatory education is discussed in chapter 4, called *Don't Be Fooled by Ignorant Schoolmasters*. In the chapter, Biesta compares three different concepts of emancipatory education: neo-Marxist critical pedagogy, the work of Paulo Freire, and the thoughts advanced by Jacques Rancière in his book *The Ignorant Schoolmaster*. He describes how both Freire and Rancière respond to the potentially authoritarian dimensions of critical pedagogy elucidating that whereas Freire locates this problem in the teacher, Rancière locates it in the role of knowledge. Unlike Freire, Rancière is also able to show why teachers and teaching remain important in emancipatory education.

In chapter 5, *Asking the Impossible: Teaching as Dissensus*, Biesta explores what this means for the work of the teacher and, more specifically, for our understanding of the *act* of teaching. Against the idea that teaching aimed at the subject-ness of the student, is a matter of “building up” – of helping the student to acquire the knowledge, skills, and attitudes that will make it conceivable for them to be a subject; teaching as a matter of empowerment. It is about approaching the student *as subject*, even – or particularly – when all the available evidence about what the student is capable of points in the opposite direction.

In Biesta's words: “The educational task consists in arousing the desire in another human being for wanting to exist in and with the world in a grown-up way, that is as subject”. Being-a-subject and adulthood mean to be able to shape the world together with others, without giving up the world due to excessive creative will or, conversely, forsaking any creative will and even shattering oneself as a subject. Biesta writes: “The middle section between world destruction and self-destruction is the field on which an adult form of (co) being with others and others can be reached”. Adulthood also includes an elaboration of one's desires encouraged, but not enforced, by pedagogical actions and the experience of the difference between the subjectively desired and the generally desired. In this respect, education is centrally about interruptions of one's own state of mind (interruption), it creates a reserve for scrutiny (suspension), and offers support and assistance (sustenance) for those to be educated.

To summarise, the main insights from the book is about

grown-up subject-ness of students, and that it is not a matter of creating spaces where students can be free – that is, enact their freedom of signification, their freedom to learn – but is rather about creating existential possibilities through which students can encounter their freedom, can encounter the “call” to exist in the world in a grown-up way, as subject.

As we see, Biesta's pedagogical approach is very much rooted in contemporary social philosophy and epistemology as well as in the European tradition of philosophy of education. He criticises the dominance of empirical-quantitative educational research, in particular its claim to supply educational policy and educational practice with sound and solid empirical evidence as a basis for decisions concerning educational policy and practice. In his book, he has repeatedly rejects the claim of psychology to be able to adequately interpret and analyse pedagogical processes and phenomena in general, and teaching and teachers' work in particular. His recurring motif in this context is the criticism of the “learnification” of education. Biesta's theoretical considerations concerning education and teaching have to be presented, because his theory of teaching and the teacher are embedded in ideas about the mission, the importance, and the limits of education in general: the task of education is to support children and adolescents on the way to independent adult life.

In this respect, one can view Biesta's work as a corresponding item to psychometric and experimental quantitative educational research and to the global “test industry”. In his view, the test industry could be unsettling both teachers and parents, by orienting schools and teaching towards a narrow – and wrong – goal: the increase of measurable learning outcomes in a few central domains, which results in a deprofessionalisation of teaching.

Some remarks on the language of the book and some textual features are also warranted in this context. Biesta points out that the book consists of some of his already published journal articles that have been newly collated and integrated to present a broader and comprehensive picture. In the book, the reader finds many references to Biesta's other published work as well as many cross-references to other chapters of this book. The weaving together of articles originally published independently from each other into a complete book inevitably leads to some redundancies here and there. But the chapters' introductions and outlooks, as

well as inserted summaries, do provide a very consistent line of thought. Reading the book for a second time, this consistent line of argumentation becomes even clearer. Due to his positioning in existentialist educational philosophy and his use of language, his rhetoric is sometimes very condensed, especially when he presents crucial points of his line of thought, resulting in a slightly poetic, but by no means murmuring tone. Although very abstract and complex philosophical themes and difficulties are discussed, it is easy to follow the author's line of thought because of the clear organisation of the text and the use of language, which is not forcefully compelling, but rather gently persuasive.

As we know, Biesta is arguably one of the best-known and most-cited contemporary educational philosophers in the world. In his work he covers a broad spectrum of educational philosophical topics, in which he does not just focus on questions, traditions, and problems of philosophy

of education in the narrower, technical-specialist sense. Nor does he follow the 'classic' traditional analytic approach to educational philosophy. Rather, his books and articles are devoted to a very broad range of themes and developments in the current educational system. He also includes educational research and theorising in his work, and links all this to processes of change in the socio-cultural contexts of education, schools, and teaching. After numerous books and essays on more general and fundamental educational topics, it makes sense that he has now published this book on teaching and teachers under the title *The Rediscovery of Teaching*.

Considering the above, this book is an essential read for anyone interested in the philosophy of education, education theories or the important role of the teacher. As someone new to philosophy one could be challenged by the terminology, but once understood, would provide exciting reading.



## BOOK REVIEW

### Textbooks for Sustainable Development - A Guide to Embedding

Sneha Rani \*

The Guide Book titled “Textbooks for Sustainable Development: A Guide to Embedding” is a very informative and revolutionary international guidebook on embedding concepts of peace, sustainable development and global citizenship in textbooks of core subjects was launched at the 3rd Asia Pacific Meeting on Education 2030 (APMED III) in Bangkok on the 4th of July, 2017.

The book aims to incorporate the concept of sustainable development in education and foster a reflective ethos and a sense of responsibility for a common humanity, empowering students to become critical thinkers, empathetic citizens and active agents of their communities. Commonly referred to as ‘The Embedding Guide’, this book introduces the approach of embedding education for sustainable development into core subjects, building on the German initiative as well as consolidating other existing efforts. This publication is available in Open Access under the Attribution-Share Alike 3.0 IGO (CC-BY-SA 3.0 IGO) license (<http://creativecommons.org/licenses/by-sa/3.0/igo/>).

This ambitious work began when the UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP), with support from Engagement Global gGmbH, brought together 30 international experts in mathematics, sciences, languages, geography and education for sustainable development in Bangalore, India, in June 2016. This book was published by the Mahatma Gandhi Institute of Education for Peace and Sustainable Development with contribution of UNESCO, MGIEP 2017, and is an eye-opener for the stakeholders in curriculum and textbook development.

This publication is designed as a guide for stakeholders in textbook development – education ministries, national curriculum authorities, textbook writers and publishers – to help them produce a new generation of textbooks. Such

textbooks will make a clear departure from the mechanistic transmission of information and procedural knowledge devoid of meaning and contextual relevance. They will also advocate a new vision of learning and contribute to fostering young people’s competencies and capabilities to shape more peaceful and sustainable societies. The Embedding Guide offers concrete guidance for authors of mathematics, science, language and geography textbooks on how to ‘embed’ peace, sustainable development and global citizenship in textbook content. There is a chapter dedicated to each subject. The guide has been written collaboratively by about 25 experts from all parts of the world.

This book offers concrete guidance for authors of mathematics, science, language and geography textbooks on how to ‘embed’ peace, sustainable development and global citizenship in the textbook content. The book consists of five chapters, each describing a specific facet of education eloquently. The first chapter includes the introduction of the book and second chapter deals with the mathematics in relation to sustainable development. Similarly, the third, fourth and fifth chapters provide guidelines for science, geography and language education in terms of sustainable development respectively. As the chapters correspond to different disciplines of education, each chapter is authored, designed, and reviewed by different renowned scholars from around the globe.

The first chapter explains that the purpose of the book is to sensitise the need for educational transformation to shape a more sustainable world and the basics of embedding of sustainable development in education. This book considers education for sustainable development in a very broad frame encompassing the transformative education efforts included in the educational aspect of sustainable development goal, i.e. quality education

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for ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all. This guidebook focuses on multi-disciplinary approach towards the sustainable development rather than an individual discipline. This book also provides an indicative list of ESD competencies with special notes on understanding competencies along with the Criteria for selecting ESD topics. In short, this chapter highlights the pedagogical aspects, contents, skills, competencies, dimensions and even assessment in alignment with Education for sustainable development (ESD).

The second chapter correlates mathematics with ESD. It focuses human challenges addressed by mathematics, and thus describes how mathematics is a human activity that can support aspirations for sustainable development. Next, the chapter outlines advice and acts as a support system for textbook authors with an interest in ESD. The chapter closes with examples of text and discusses how these examples connect to the guidance given in this chapter. It configures the Mathematical processes, Generalization and abstraction as tools for complex systems. Critical thinking is a universal principle for ESD and this book highlights the use of mathematics as a tool for identifying injustice. If mathematics is to support engaged citizenship and develop an understanding of the complex systems related to sustainability, then students need to work with real and complex contexts at every level. It also guides the authors that how different topics of Mathematics can be used for ESD. It also gives importance to Moral Maths.

The third chapter of this book focuses on need for the ethical grounding in education. This chapter concentrates on science as one aspect of a multidisciplinary attempt to make sense of and understand the world in which we live. It also provides the key principles to guide the embedding of ESD in science textbooks. It promotes the integration of Critical thinking, use of inclusive and accessible language for ESD perspectives. It guides the authors regarding the three approaches as strong tools for embedding ESD into science textbook content which are as follows: 1) A thematic approach, which links SD issues to curriculum content, 2) A science, technology, society and environment (STSE) approach, which makes clear connections between science content and SD issues, and 3) A problem-based learning (PBL) approach. It also provides examples in Chemistry, Physics and Biology that how ESD can be incorporated in Science Textbook.

The fourth chapter begins with a reason behind the correlation between Geography and sustainable development, global citizenship and peace along with its meaning for education. It highlights Geographies and their contribution to sustainable development. It considers embedding ESD in geography textbooks is not only a matter of working with a certain type of geographical content, but also a matter of using pedagogical approaches consistent with ESD. It gives importance to the use of spider web. It also gives a worldwide view regarding approaches of Geography Education, i.e. one approach considers ways of working with geographical content in coherence with ESD, the other looks at ways of orientation of geographical tasks along ESD pedagogical principles or guidelines. As per this book both approaches should be considered in an interrelated way to maximize the potential of geographical education for ESD. It also provides a guideline regarding general pedagogical principles favourable to ESD. It also gives example of creating geographical tasks along ESD principles for different topics.

The last and fifth chapter deals with Language Education. It begins with an answer to the question “Why language is an effective tool for making a better world?”. The next part of this chapter deals with the principles, tools and approaches for embedding ESD in language textbooks. According to this book, language is not only an effective tool for the communication of ESD but also for creating a peaceful, just and ecologically sustainable world, for developing critical thinking skills, for developing critical thinking skills, for peace, for social justice, for advocacy, for identity through mother-tongue use, to enable learners to make informed decisions and take action as responsible global citizens, for developing critical interpretation and thinking skills, for clarification of values through literature to make learners aware of the values needed to create a just and sustainable environment and to develop empathy and the ability to see varying perspectives, including a future’s perspective. It also helps the authors by giving examples concerning different approaches of Language Teaching for embedding ESD.

In the words of Eckhardt Fuchs, Director, Georg Eckert Institute for International Textbook Research, “This guidebook will be an eye-opener for many stakeholders in curriculum and textbook development”. When I retrospect, I also believe that by following this guidebook the authors and teachers can bring a revolution in the world

of education, especially, school education. It will not only bring innovations in textbooks but also in the pedagogical approaches in different disciplines pertaining to ESD. It will make the teachers and students creative, constructive and skilled in Advanced Cognitive Abilities. It will groom each student to work not only for themselves but also for the entire human generation. It will bring into practice the thought of “Vasudhaiva Kutumbakam”.

I hope that this guidebook will provide valuable insights and support to help textbook authors identify curriculum

opportunities for embedding education for sustainable development into subject content. I will urge all the teachers and others engaged in the domain of creating, disseminating and delivering education to read the book for it will not only enhance the horizons of learning of all concerned, it is sure to provide a completely new perspective to a collaborative and integrative learning mission that would lead to a better world for us and also the future generations.

## ARTICLE DIGEST

## Artificial Intelligence (AI) for Teaching and Learning: Implications for School Leaders, Teachers, Policymakers and Learners

### Article by

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### Article Digest by:

**Prof. (Dr.) Taposh Ghoshal\***

A very stimulating article ‘Artificial Intelligence (AI) for Teaching and Learning: Implications for School Leaders, Teachers, Policymakers and Learners’ was presented in the International Summit on ICT in Education and was termed Edu-Summit 2022-23. The Summit was organised during May 29th – June 1st, 2023 Kyoto, Japan. The Summit deliberated on the theme “Moving forward to new educational realities in the digital era”. The study was done and presented by a team of seven researchers - Dirk Ifenthaler, University of Mannheim, Germany and Curtin University, Australia, Rwitajit Majumdar, Kyoto University, Japan, Pierre Gorissen, HAN University of Applied Sciences, The Netherlands, Miriam Judge, Dublin City University, Ireland, Shitanshu Mishra, UNESCO MGEIP, India, Juliana Raffaghelli, University of Padua, Italy and Atsushi Shimada, Kyushu University, Japan.

The researchers followed a Delphi study approach which involved collecting, reviewing and synthesizing evidence from research publications, reports, correspondences, an expert survey, and practitioner conversations around AI in education and identify current and potential issues around the use of AI in education. The study report proposes strategies and actions, as well as recommendations for policymakers, researchers and practitioners to attempt to overcome the potential issues that could influence Teaching and Learning.

The authors opine that Artificial intelligence (AI) in education is a generic term which describes a wide

collection of different technologies, algorithms, and related multimodal data applied in formal, non-formal and informal education settings and includes data mining, machine learning, pattern recognition, natural language processing, large language models, generative models, neural networks. The still-emerging field of AI in education has been informed by new frameworks, methodological approaches, and empirical investigations into educational research; for instance, novel methods in educational research include machine learning, network analyses, and empirical approaches based on computational modelling experiments (Gibson & Ifenthaler, 2020). The new frameworks and adoption models focusing on learning analytics are required for the successful integration of AI systems into educational organizations (Buckingham Shum & McKay, 2018). However, these models of practice and adoption vary across different organizations due to situational and historical conditions, within any individual organization due to disciplinary and contextual idiosyncrasies and across different countries due to these as well as cultural differences (Klasen & Ifenthaler, 2019)

While AI in education has been a theme of research in the educational technology community (Zawacki-Richter et al., 2019; Zheng et al., 2021), the authors aimed to systematically investigate the following four ideas:

1. To review recent research and innovations in artificial intelligence in education and their connection to supporting learning, teaching, and educational decision-

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making in order to identify key issues and trends in policy and practice.

2. Showcase best practice deployment of artificial intelligence in education in organizations.
3. To examine the potential for further development and innovation in artificial intelligence in education.
4. To make recommendations for policy, practice and research.

The initial two phases of the Delphi study led to emergence of three fundamental trends that are described below.

i. Privacy and Ethical use of AI and Big data in Education

This trend highlights the importance of data privacy (data ownership, data access, and data protection) in relation to the development, implementation, and use of AI systems in education. Inevitably, handling of these data privacy issues has significant ethical implications for involved stakeholders. For instance, Adejo and Connolly (2017) discuss ethical issues related to using learning analytics tools and technologies, focusing on privacy, accuracy, property, and accessibility concerns. Further, a survey study by Ifenthaler and Schumacher (2016) examined student perceptions of privacy principles in learning analytics systems. The findings show that students remained conservative in sharing personal data, and it was suggested that all stakeholders should be involved in the implementation of learning analytics systems. In this context, the authors refer to Celik (2023) who emphasized on teachers' professional knowledge and ethical integration of AI-based tools in education and suggested that teachers with higher knowledge in interacting with AI tools have a better understanding of their pedagogical contributions.

ii. Trustworthy Algorithms for Supporting Education

This trend focuses on trustworthiness, defined as the security, reliability, validity, and accuracy of AI algorithms used in education. It particularly focuses on the impact of algorithmic bias (systematic and repeated errors resulting in unfair outcomes) on different stakeholders and stages of algorithm development. For example, Baker and Hawn (2022) studied the algorithmic bias in education, discussing its causes and empirical evidence of its manifestation, focusing on the impacts of algorithmic bias on different groups and stages of algorithm development and deployment in education. Alexandron et al (2019) raise concerns about reliability issues and classify the presence of fake

learners who manipulate data, as well as demonstrate how their activity could bias analytics results. Li et al (2023) also mention the inhibition of predictive fairness due to data bias in their systematic review of existing research on prediction bias in education

iii. Fairness and Equity of AI in Education

This trend emphasizes the need for explainability and accountability in the design of AI in education. It requires lawful, ethical, and robust AI systems to address technical and social perspectives.

Current research related to the three trends overlap and emphasizes the significance of considering stakeholder involvement, professional knowledge, ethical guidelines, as well as the impact on learners, teachers, and organizations. For instance, Webb and colleagues (2021) conducted an inclusive review of machine learning in education, highlighting the need for explainability and accountability in machine learning system design. They stressed the importance of integrating ethical considerations into school curricula and providing recommendations for various stakeholders. Bogina et al (2021) also focused on educating stakeholders about algorithmic fairness, accountability, transparency, and ethics in AI systems and highlighted the need for educational resources in addressing fairness concerns and provide recommendations for educational initiatives.

Moving forward to new educational realities in the digital era, a third phase of the Delphi study was also done that identified emerging educational realities with AI in education. The same is mentioned below:

i. New Roles of Stakeholders in Education

It emerged that AI is ubiquitous in education, and involves stakeholders interaction with AI systems in an educational context. New roles and profiles are evolving beyond traditional paradigms and the need for enterprise-wide deployment of AI in education is being stressed which should be accompanied by extensive staff training, and support. Also, new forms of imagining AI and of deciding on its integration in prevailing socio-cultural systems would also have to be discussed by all stakeholders. Hence, AI deployment is reflecting different levels of influence, partnership and adaptation that are required to introduce and sustain novel technologies in the complex system that constitutes an educational organization. As Andrews and colleagues (2022) recommend, there is a need for appointing a Digital Ethics Officer (DEO) in educational organizations who would be responsible for



overseeing ethical guidelines, controlling AI activities, ethics training as well as creating an ethical awareness culture and advising management.

#### ii. Human-AI-Alliance in Education

AI in education shifted from being narrowly focused on automation-based tasks to augmentation of human capabilities linked to learning and teaching. Seeber and colleagues (2020) propose a research agenda to develop interrelated programs to explore the philosophical and pragmatic implications of integrating human and AI in augmenting human collaboration. Similarly, De Laat et al (2020), as well as Joksimovic et al (2023) emphasize the challenge in bringing human and artificial intelligence together in such a way that learning in situ and in real-time will be supported.

#### iii. Precautionary Pre-emptive Policies Precede Practice for AI in Education

Overwhelmed by the speedy transformation in the technology landscape, decision-makers are trying to introduce restricting policies in reaction to initial societal concerns with emerging AI developments. The issue of educational data use and how state and local policies fail to align with the broader evidence base of educational organizations is being highlighted. As a response to such uninformed actions, Tsai and colleagues (2018) introduced a policy and strategy framework which may support large-scale implementation involving multi-stakeholder engagement and approaches toward needs analysis.

### Key insights from other TWGs

With reference to the study on learning beyond formal schooling: human-computer-human interactions in a digital inter-connected era, the authors believe that AI might bridge formal, non-formal, and informal learning opportunities and pathways. Similarly, following other contemporary studies, the authors think that AI could enhance teachers' professional learning. In addition, studies with regard to fostering self-regulatory skills in learners and challenges and opportunities for assessment therein and also, the socio-emotional aspects in new modes of learning, the benefits of AI in supporting the development of complex skills such as self-regulated learning and socio-emotional components of learning have been identified. Besides, research on special Needs and addressing challenges and opportunities using IT, highlighted the need to move into Human in the lead (instead of just Human in the loop) and

awareness about the sensitivity of data in the context of special needs education, was also highlighted.

The authors say that based on the findings of the three phases of the Delphi study as well as current work by other researchers, the following actions have been recommended for policymakers, researchers, and practitioners, with each strategy linked to the corresponding challenges identified above:

In order to support the new roles of stakeholders in education, there is a need to identify the elements involved in the new roles and identify and implement pedagogical practices for AI in education. Educational administrators must also develop policies to support AI and data literacies through curriculum development.

Authors also state that in order to support Human-AI-Alliance in education, there is a need to encourage and support collaborative interaction between stakeholders and AI systems in education, take control of available AI systems and optimize teaching and learning strategies and promote institutional strategies and actions in order to support teachers' agency and avoid teachers' de-professionalization.

The paper also emphasizes that in order to support evidence-informed practices of AI in education, educational administrators should use both the results of fundamental research into AI and also the results of live case studies to build a robust body of knowledge and evidence about AI in education. Open science and research on AI in education also must be encouraged and evidence-informed development of AI applications implemented. Also, evidence-informed pedagogical practices should also be executed.

Lastly, it is also stated that in order to support ethical considerations of AI in education, ensure maintain privacy and ethical considerations through a multi-perspective and interdisciplinary approach as the core of AI in education, consider the context, situatedness, and complexity of AI in education's impacts at the time of exploring ethical implications and study the effects of AI systems in the context of education continuously.

The paper sheds light on several new insights into the emerging dimensions of AI and how it can be effectively harnessed for the benefit of education and knowledge organizations appropriately. It is a 'Must Read' article and is highly recommended for everyone associated with the education sector.

**ARTICLE DIGEST****Education for Sustainable Development in India: A Narrative Review****Article by**

**Dr. Sunil Kumar Choudhary** : Associate Professor Udaipur School of Social Work  
Rajasthan Vidyapeeth (Deemed-to-be) University, Udaipur, Raj

**Article Digest by :**

**Dr. Babita Kumari \***

The article “Education For Sustainable Development In India: A Narrative Review” is a stimulating article about how to make the education more effective and efficient in schools. And for this, every stakeholder of the school community has to be sensitized towards sustainability and should understand how their role is vital in today’s time. Authored by Dr. Sunil Kumar Choudhary, the article has been published in International Journal of Mechanical Engineering, ISSN: 0974-5823 Vol. 7 (Special Issue2), Jan.-Feb. 2022.

In the article, the author focuses on the UN Sustainable Development Goals (SDGs), particularly, the SDG 4, ensuring inclusive and equitable quality education. The author after extensively reviewing the existing literatures on different aspects revolving around sustainable development and education, has share his own understandings in the paper along with the existing theories/ models and has tried to underline the challenges confronted by schools and also the good practices that schools, universities and other educational institutions can adopt to enable education to contribute positively for sustainable development.

The author opines that in order to achieve environmental sustainability, education is an essential tool for without education, sustainable development cannot be realized at any level. The practices within the growing economic trends and the consumption pattern of humans clearly shows the lack of vision in having a sustainable future. And in order to address this challenge, a positive shift in the awareness, knowledge, attitude and behaviour of public is needed and it can be done using education as a tool.

The article highlights the Sustainable Development Goals announced by the United Nations in 2015, in which countries from all over the world participated and signed

the global goals and underlines the concern of one and all related to these highly set ambitious global goals about whether these goals are achievable and are realistic in nature.

The article further states that a lot was achieved during the Millennium Development Goals, which was announced in the year 2000 till 2015. But, there were many gaps which has led to its letdown. And then the SDGs were announced, which gave 17 goals and 169 targets to the world and called it as Agenda 2030 with a motto, ‘No one should be left behind’. And therefore, it becomes more important to not to repeat the mistakes committed during the implementation of MDGs. What the world has to do is to learn from those mistakes and duplicate the success achieved from MDGs during the implementation of SDGs. And one of the clearly identified mistakes was not being able to use Education as a tool in promoting Sustainability.

In the article , the author says that it is not the fact that the efforts have not been made in the field of Education for Sustainable Development which is largely and internationally denoted as ESD. But it seems to be more of the fact that the Education being provided in schools is much of theoretical in nature and is in the books rather than being hands-on. And that we can call as, ‘Education around Sustainable Development’. As is perceived, there is a vital difference between the two terms; while One teaches why Sustainable Development is important, the other term explains what action and steps one must take to implement and achieve Sustainable Development in reality. Education for Sustainable Development makes one an active and responsible citizen of this planet and it aims at creating a planet which is safe, healthy and livable for everyone now and for the future generations.

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The article also highlights that the ‘Sustainable Development Goal 4’ (SDG4) advocates for high-quality education for all, which is rooted in a number of international declarations, including the ‘Universal Declaration of Human Rights,’ ‘Convention on the Rights of the Child,’ ‘World Declaration on Education for All,’ ‘Dakar Framework for Action,’ and the ‘Millennium Development Goals,’ and thus sees education as vital to the well-being of individuals, nations.

That the relationship between the Education and Sustainable Development is not that easy to understand is also deliberated upon in the article. Author underlines the fact that it is complex in nature. Any nation’s capacity to achieve Sustainable Development Goal and targets will depend on the status and level of education. It is the basic requirement which we all have to comprehend. Without this, the set goals and targets would just be a dream. Any goal without a plan is just a wish and following this, we as a nation need an educational plan and strategy in action and not just in paper. Bringing education as a powerful tool, it can improve the standard of living and quality of life of citizens by generating employment opportunities for the youth, providing safety for women, protecting the environment, providing education to all age groups, reducing dropout rates, etc.

In this context, the article mentions the National Education Policy (NEP) introduced in 2020 as India’s first education policy of the 21st Century. NEP is introduced with a vision on Education for Sustainable Development and is expected to move India on the track to achieve Goal 4, Quality Education, by offering inclusive and equitable education to all. NEP has put a special consideration on the need of structuring the entire education system of the country if India wants to timely achieve the set goals and targets. NEP 2020 has put a focus on providing comprehensive and integrated environmental education including areas such as sustainable development and living, waste management, environmental protection, biodiversity, protection of environmental and biological resources, sanitation, climate change. NEP particularly emphasized on training and sensitizing teacher educators and trainers around Sustainable Development and has made it mandatory environmental education as a part of the curriculum. NEP aims to provide education in a way that it shall provide and generate sustainable livelihoods and will boost the economy of the nation.

Here the author further explains that ESD has been a major focus of national and international organizations, but a very limited progress has been seen so far. There are many factors and reasons contributing to the lack of progress. The Author’s real-time interactions with Global Schools Ambassadors and Advocates from United Nations Sustainable Development Solutions Network (UNSDSDN), who have worked implementing ESD in schools and communities, suggests several critical barriers and challenges to Education for Sustainable Development in India including lack of awareness, practicing ESD in the curriculum, simplifying the concept of ESD, community participation to ESD, lack of shared ownership, collaboration and strong partnerships, lack of financial resources and materials, etc.

The article extends the following suggestions to overcome challenges and for effective implementation of ESD.

1. Spreading Awareness: Spreading awareness about ESD shall be the first step. If people don’t know what sustainability and education is what is the relationship between the two, it is impossible to move forward in the right direction.
2. Effective ESD Curriculum: The ESD Curriculum shall aim at developing right attitude, skills and behaviour among the school community and stakeholders. It should bring and promote behavioral change and it should be simple, precise and actionable in nature. Activities related to sustainability shall be inbuilt in the ESD curriculum.
3. Encouraging Community Participation: It is very important for the experts designing curriculum to consider the local context and relevancy. The School Management Committee in Schools should engage community members in their meetings and plans and there should be a particular focus on how local community can be involved in school activities and contribute towards sustainability.
4. Sustainability Forums: There is a need to for, restructure and use existing forums, platforms and committees to promote ESD in schools. The platforms such as Bal Sansad, Bal Sabha, Children Cabinet, School Management Committee etc. should encourage activities in with action throughout the year on sustainability. This will increase the involvement of

all respective stakeholders such as children, teachers, parents and community members.

5. Networking, Partnerships and Collaborations: There is a need of strong collaboration between Government, Private Sector, Civil Society Organizations, Institutions, and all relevant stakeholders and to become as one Collective implementing ESD. This will build the capacity and will also support in addressing financial and resource constraints.

The author concludes the article by reiterating that 'Education', no doubt, is a key to bring sustainable development and is a game changer tool. Education can bring required changes in the attitude, behaviour and skills

among the school community who can become ultimate future problem solver and decision makers. If the schools, institutions, colleges can bring in theme of sustainability as a central part of the education in a practical manner, then this would be one of the greatest contributions to ESD.

As it can be discerned, this paper has attempted to examine what all studies and literatures have already been done in the field of ESD, good practices shared and what are still the critical barriers and obstacles to ESD and how to address those obstacles. The review article tries to elaborate actions and steps needed around sustainability and focuses on Education for Sustainable Development and not Education about Sustainable Development.

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3. The Abstract should be of maximum 200-250 words.
4. All the manuscripts should be typed in double-space with 12 point font in Times New Roman and One Inch margin on all sides on A 4 size paper.
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## Endnotes