Enhancing Lateral Thinking in Engineering Graduates (Indian context)

- Ideas lead the world.

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ABSTRACT: The rapid pace of developments in the corporate industry is expected to intensify in both the technological expertise and non-technological domains (like people skills, ability in building relationships, lateral thinking, persuasion skills etc.) to figure its sustainability and succeed by envisaging market specifications and trends, and meeting them with an enhanced scale of satisfaction. This would become a certainty, when the organization is driven by values and powered by lucrative ideas (generated by its human capital).

Thus, there exists a great need for creative thinking (also called "serious creativity", Harper Business, 1992) which is all about overcoming old habits and going beyond conventional vertical thinking, the baseline of lateral thinking (similar to 'Divergent Thinking', J.P. Guilford).

This paper demonstrates innovative approaches implemented in enhancing lateral thinking quotient as a part of Soft Skills program to inflate employability fitment.

INTRODUCTION

The focus of education should be on educating and igniting young minds instead of producing the mere academic results that can't embolden the students. Conversely, in Indian education system students are tuned to use only their memory skills, rather cognitive skills through the practice of "spoon- feeding" and giving importance to conceptual knowledge. As a result, students have developed an incessant dependency on guides and bazaar notes rather than on their inherent skills.

It is proved that new ideas mean inventions in the form of mechanical contrivances. Perhaps this may be most obvious form, but new ideas include new ways of doing things, i.e., looking, organizing, and presenting things. Undoubtedly in every field /domain, creative ideas are always in demand that may be as specific as one requires.

[1]Mr. Lee de Forest's and [2]Mr. Marconi's experiments have proved that it is better to have enough ideas, for some of them to be wrong than to be always right by having no ideas at all.

Without creating conducive teaching and learning environment students may flounder in their ability to gain skills which are the need of the hour.

LATERAL THINKING

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The need for lateral thinking arises from the limitations of the behavior of mind as a self-maximizing memory system.

In Mr. **Edward de Bono** words**,** Lateral **thinking** (the term coined in 1967) can be defined as solving problems through an indirect and creative approach, using the reasoning that is not immediately obvious. It also involves ideas which can't be evolved by using only traditional step-by-step logic.

Lateral thinking is quite distinct from vertical thinking. Though, both are complementary to each other, the former is concerned with proving or developing concept patterns and the later with restructuring such patterns (i.e., insight) and provoking new ones (creativity). In other words, the first one is concerned with the generation of new ideas, breaking out of the conceptual presence of old ideas that lead to changes in attitude and approach. Simply, it is all about liberation from old ideas and the stimulation of new ones.

HISTORICAL SYNOPSIS

- Edward De Bono's Lateral Thinking Model

Creative thinking models called "lateral thinking" and "parallel thinking" developed by Edward De Bono(in 1969, 1970), deal with mechanism of the mind, contained a key insight upon which the lateral thinking model is based De Bono's research concludes that the brain is indeed a self-organizing system that routinely interprets inputs into patterns.

It is then not inherently designed for creativity. However, if certain lateral thinking tools are applied, the brain can be encouraged or trained to become more creative. (Bailey, 2007, p. 46). In 1985, De Bono published a second break-through book entitled Six Thinking Hats that extolled parallel thinking, "A technique for training the brain to look at a problem from a variety of angles" (Carter, 2007, p. 20). The six types of thinking include blue hat thinking (process and control), white hat thinking (facts, information), yellow hat thinking (benefits of an idea), black hat thinking (weak aspects of an idea), red hat thinking (emotional or feeling), and green hat thinking (new ideas and creativity) (Carter, 2007, p. 20).

These six thinking skills (or "hats") are aimed at exploring ideas there by generating better outcomes, and providing an alternative to traditional critical thinking that mainly analyzes ideas with argument and counter-argument.

Lateral thinking Vs Vertical thinking

Lateral Thinking	Vertical Thinking
Richness matters.	Rightness matters.
It is generative (seeks to open up other pathways rather selecting.)	It is selective (selects a pathway by excluding other pathways.)
One generates different approaches for the sake of generating them (De Bono, 1970, p. 39).	One tries to select the best approach.
It is sequential.	It is analytical & provocative.
One does not have to be correct in every step.	One has to be correct at every step.
One welcomes change intrusions.	Concentrates and excludes what is irrelevant.
One explores least likely ways / paths(De Bono, 1970, pp. 39- 43).	One follows the most likely path.

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Vertical thinking and lateral thinking, when practiced together, end up being one complete creativity "thinking skills" model.

APPROACHES IMPLEMENTED

The major learning skills listed in the framework for Gen. Y learners are 4Cs: Communication, Collaboration, Creativity and Critical thinking.

A few of the approaches we have implemented to enrich lateral thinking ability are:

1. Project Based Felicitation: Several of the modules are facilitated through assigning the relevant module based projects. Learning is aptly fostered through open evaluation, suggestions to improve and facilitator guidance. Moreover, best project(s) are complemented to imbibe collective learning.

2. Generating critical questions: students are engaged in generating questions that just don't end at answers, but generate further questions on the dealt module of the session.

3. Perceptions on photographs & Cartoons: students are given different types of photographs and cartoons, collected from various media(news, papers, Social net working sites, etc) sources to make their perceptions beyond natural appearances.

4. Situation based responses: a sheet drafted with different critical situations (different sorts of problems) is given to students and are asked to make individual responses on any or all of the situations where different sort of responses presented should be captured and taken through an open discussion.

5. Creating theme for objects: Students are given an opportunity to choose any of the objects/things in and around of them, and make a simple anecdote, driven with a modernized theme and message. An open brainstorming session is conducted by welcoming new perception as part of improvisation.

6. Short stories: Students are encouraged to choose any of the ancient theme-based stories from different sources(like Pancha Tantra, 'Chandamaama', 'Balamitra', etc) and then asked to come out with different versions of the same story driven with a modernized theme and message as like https://www.youtube.com/watch?v=GXTeFa43730.

7. Demonstration of Problem(s): This is an old problem but it drives home the point aptly. Nine dots are arranged as shown overleaf. The problem is to link up these nine dots using only four straight lines which must follow on without raising the pencil from the paper.

At first, it seems easy and various attempts are made to link up the dots.

Then, it is found that one always needs more than four. It looks seemingly impossible, yet they longed to delve into.

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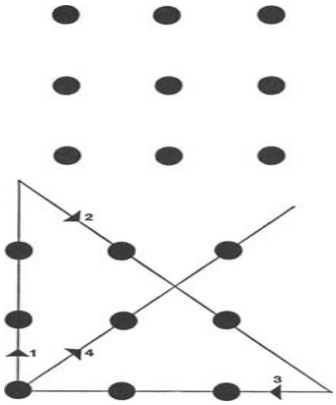

The assumption here is that the straight lines must link up the dots and must not extend beyond the boundaries set by the outer line of dots. If one breaks through this assumption and does go beyond the dots only can it be done.

The purpose of these activity dynamics is to provide a plethora of opportunities for the practical use of lateral thinking by instilling out of box thinking and get them habituated to lateral thinking. The practices are not suggested as formal routines rather must be exactly learned to be deliberately applied thereafter.

Nevertheless, these practices can be used until one acquires sufficient fluency in lateral thinking to do without the formal practice of activities /exercises.

Like a spark plug, these activities induce a creative spark in the student taking him/her out of the box thinking skills.

8. Why Technique: A game that provides an opportunity for practicing the challenges of assumptions.

'Why' is usually asked when one does not know the answer/ something with purpose of eliciting information where one wants to be comforted with some explanation, and gets satisfied. Whereas the approach of lateral use 'why practice' intensifies to create discomfort with any explanation. By refusing to be comforted with an explanation one tries to look at things in a different way, thus, increasing the possibility of restructuring the pattern.

Some possible subjects for this type of session are:

Why are wheels round?

Why are most rooms square or oblong?

Why do people have two legs?

Brainstorming sessions encourage the application of the principles and techniques of lateral thinking while providing a relief from the rigidity of vertical thinking and (in it) the provocation is supplied the ideas of others. These sessions can be equated to creative thinking. The main feature of brainstorming session is cross stimulation and suspended judgments.

The main focus in all of the activities is to enhance forward thinking in students as it involves building up something new rather than analyzing the old versions(backward thinking). Because innovation and creativity involve forward thinking as well bring out an effect than explaining the effect.

CONCLUSION

As lateral thinking is both an attitude and method of using information psyches with the fundamental aspects of the deliberate generation of alternative ways of looking at things and challenging assumptions.

The differences between lateral and vertical thinking are very fundamental with quite distinct processes. It is a matter of realizing the differences to be able to use both of them effectively.

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It's time for Indian education institutions to make the class room teaching more interactive, learner-centric and reflective as the need of the hour is to produce creative and critical thinkers, can be achieved adopting and implementing the best teaching and learning practices.

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