



CRITICAL THINKING FOR STUDENTS

ALKA KAPUR ¹

¹ PRINCIPAL, MODERN PUBLIC SCHOOL.

ABSTRACT:

Equipped with data, backed by advanced analytical tools, and gifted with developed emotional intelligence, human intellectual capabilities remain unsurpassed. With the growth of economies and organization size, the number of challenges rose as well and the need to manage them was ever rising. The need for problem solvers grew and organizations began hunting for one specific skill – Critical Thinking Abilities.

We took cognizance of its importance in the 1990s and for over a decade we lived with the notion that we could develop these capabilities artificially without professional help. Parents tried to present children with challenges early on, but the sheer artificiality of the exercise deprived them of one basic thing – real world problems. In the process of 'learning,' students took to rote memorization of the solutions and defeated the purpose of augmenting critical thinking abilities altogether. Our educational systems failed to bridge the gap as well. Contingent upon the above fiasco, the same students who are out into the real world today have not adequately developed reasoning and inquisitive natures. In lieu of asking 'what,' 'how' and 'why,' they all registered new information as facts and never questioned anything.

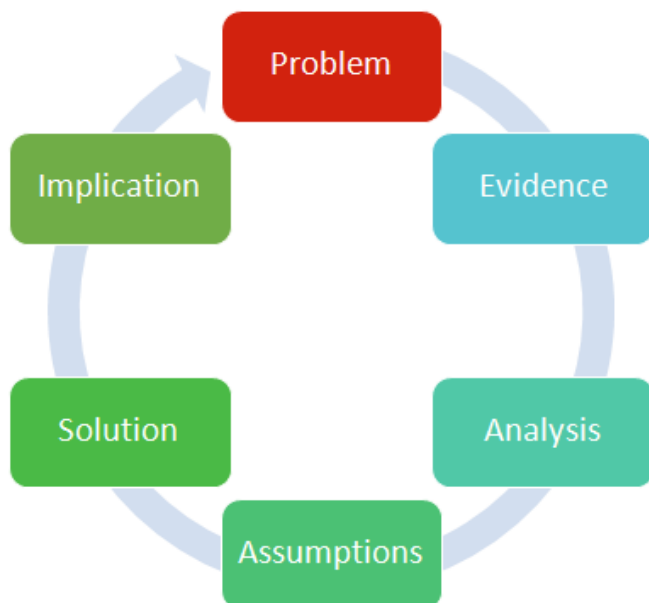
As a direct impact, organizations have found those students to be unemployable. We explore the problem in detail and understand what exactly the extent of the problem is today. This article explores various facets of the conundrum at hand and also chances upon ways to hone critical thinking skills without detrimental results. Needless to say, working on critical thinking also nurtures creativity, improves complex problem solving and leads to effective expression.

KEYWORDS:

CRITICAL THINKING ACUMEN, REASONING, ANALYTICAL ABILITIES, ROTE MEMORIZATION EDUCATIONAL SYSTEM, TRADITIONAL TEACHING METHODS, DOUBLE LOOP LEARNING, ENHANCE CRITICAL THINKING.

WHAT EXACTLY IS CRITICAL THINKING?

When stripped down to its bare essentials, critical thinking is a cycle:



This cycle achieves one result with each iteration –

replaces one thought with a better thought. Why? Because for each solution you explore, there is a concomitant implication. You therefore explore alternatives until you arrive at an implication which is actually a fruitful conclusion / solution. This process enables you to arrive at a logical and meaningful decision backed by facts.

Critical thinking consummates nearly every task, be it mundane or inspired. Organisations around the world thrive on data backed decisions made by people across all rungs of the corporate ladder. The 21st century is an age of 'Big Data' and 'IoT' (Internet of Things) – the two prongs of an approach set to revolutionize industries. In fact, a classic example of a critical-thinking-intensive task is the creation of such a system itself, which assimilates a ton of data, processes it and deploys it in making impactful decisions autonomously.

WHY IS CRITICAL THINKING SO BENEFICIAL?

As countries progress and economies grow, so do the industries that run them. Each and every one of them has their periscope raised for identifying the right talent to hire into their respective pools. One common trait that they are all looking for is critical thinking. But why?

- 1. It is a Universal Trait:** It does not matter what stream you graduate from, it is required everywhere. It enables students to think

coherently and solve problems methodically, which proves to be beneficial in solving complex problems or making the requisite assumptions in solving a particular problem.

2. **Improves presentation and expression:** Clarity of thought implies effective analysis of the information at hand. It contributes directly towards comprehension, concise presentation and effective expression.
3. **Promotes Creativity:** Curiosity nurtures creativity. Each problem cannot bank upon the generation of new ideas but needs the amalgamation of all the information at hand to create a tailored solution. In search of answers, a creative mind will present out-of-the-box solutions.
4. **Autonomous Grasping of Knowledge:** Critical thinkers are more self-aware and constantly on the lookout for answers without depending upon their teachers or coaches. They are much more likely to figure it out for themselves (as must be the case) than their traditionally spoon fed peers. A fine quality that elevates careers in a corporate setting.
5. **Emotional Intelligence:** Decision making could be hampered by an emotional upsurge. Critical thinking helps weigh the consequences against the actions, thus allowing an individual to make a logical and balanced decision of when to deploy emotional appeal and when not to.
6. **Working In a Team:** Critical thinking helps a person to hear everyone’s perspective, assimilate the information and assess it. It helps the team realise that there are several ways of arriving at a solution and that they can arrive at a more effective solution together rather than riding solo.

Shaping a young persona around the above traits is a herculean task but a highly rewarding one. The above qualities, if imbibed by a student, would make him/her an all-round and well-groomed personality suited for professional life.

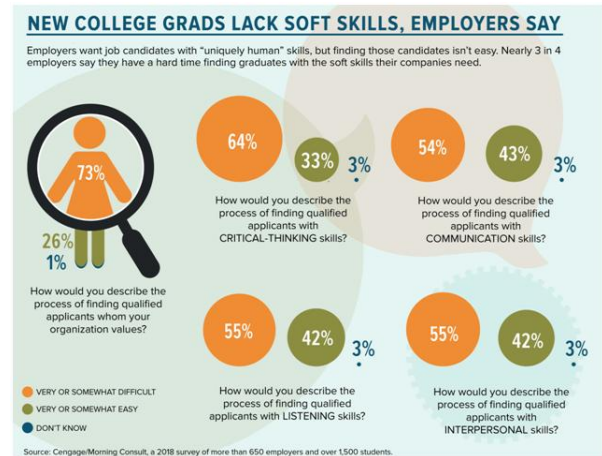
WHY IS EVERY ORGANISATION LOOKING FOR CRITICAL THINKERS?

Let us first understand the premise behind the question. A study released in 2019 by the Society for Human Resource Management revealed three startling facts:

1. 75% of recruiters who faced difficulties with hiring were of the opinion that there was a massive skill gap between the requirements of the job and the applying candidates
2. 83% of the respondents of the study faced this difficulty with hiring candidates in the last 12 months
3. 51% of the respondents feel that the current education systems have done “little to nothing” to

address the skills shortage

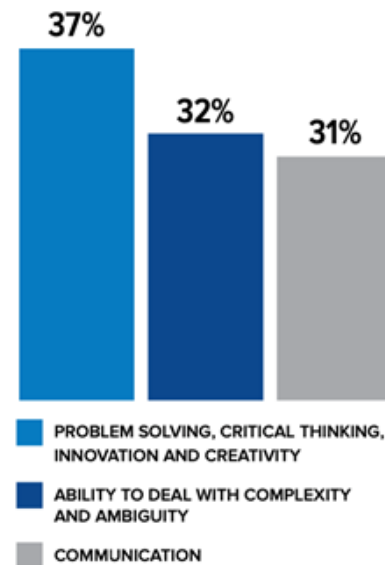
HERE ARE SOME MORE FINDINGS BY SHRM FROM THE SAME STUDY:



WHAT WAS AMISS?

The below infographic (a finding of the above study) shows the extent of the rampant problem.

TOP 3 MISSING SOFT SKILLS



If you noticed, 37% of the problem is the solution to 100% of the problem! How? We just realized in the benefits listed above that critical thinkers are absolute winners when it comes to dealing with complex problems, presenting ideas and explaining them with brevity. Hence, if we are somehow able to develop critical thinking acumen, we will not only make students more employable but also make them assets to the organisations they may work for in the future. In order to fix the problem, let us understand where we stand today.

THE STATE OF CRITICAL THINKING TODAY

The millennials of today or the kids of the 1990’s were witness to a lot of artificial mental enhancement techniques. Concerned parents tried flash cards to boost

memory, enticed excited kids with educational gaming CDs and DVDs in an effort to augment the learning experience, and sometimes even birthday presents were memory games!

Stephen Camarata, Ph.D. and professor at both the Bill Wilkerson Center and the Vanderbilt University School of Medicine, believes the above approach has done more damage than the good it sought to do. His observations regarding these millennials, who are now past their academic stint and out in the real world, revealed some disturbing results.

It turned out that instead of possessing improved analytical abilities or dexterity at logical reasoning and problem solving, this cluster of people was only good at regorging information etched in their memory from rote learning!

Authors of the book "Academically Adrift: Limited Learning on College Campuses," Richard Arum and Josipa Roksa carried out a similar study. They examined 2400 students spanning 24 different universities through a period of 4 years. Arum and Roksa arrived at a similar conclusion of dwindling critical thinking abilities in young adults over and above other skills which stopped progressing through college.

"Too many facts, too little conceptualizing, too much memorizing, and too little thinking."

– Paul Hurd, *The Foundation for Critical Thinking*

WHY IS THE SITUATION SO?

Naturally the question emerged – 'After all the hard work these parents put in for their children, why did none of it heighten brain development the way it was intended to?' Perhaps a reason is that these brains have, right from toddling age, been conditioned to only receive factual information and not process it or analyse it or reason with it. The 'earlier the better' approach to learning rather encourages rote memorization destroying the whole questioning nature of a young mind.

There are three reasons why the education system has failed to perform when it comes to critical thinking (Paul, 2005):

1. Most teachers do not fully understand the concept / criticality of creative thinking & one cannot teach what one does not understand
2. Further to the above, most parents / teachers are not cognisant of the fact that they are operating from such a position of deficit
3. Continued use of traditional teaching methods has dulled the inquisitive minds of the young. They are not required to engage their mental faculties and question assumptions or reason out why they are there in the first place

Corroborating the above observations in Sept 2020, Hon.

Prime Minister Shri Narendra Modi also presented his views, emphasising the need for development of vocation and skills in the new National Education Policy (NEP):

1. He said teachers would have to unlearn a lot and relearn under the new NEP which aims to remove the marksheet burden off the students' shoulders
2. The NEP is aimed at overhauling the educational framework, from schooling to higher education in the country with an increased focus on imparting primary education to the child in a language (s)he understands best i.e. the mother tongue.

"We have to take students forward in the 21st century with skills of critical thinking, creativity, collaboration, curiosity and communication."

– Shri Narendra Modi, Hon. Prime Minister of India

According to a report by The Conference Board, "Are They Really Ready to Work?" (Sept 2020), the education system needs to significantly ramp up efforts for creating critical thinkers. For several decades, the educational systems around the world have grown deep roots in an age-old framework. In order to produce critical thinkers, institutions will have to change how they view the process of teaching young minds and the outcomes they desire. This process will have to involve '**Double Loop Learning**' or the ability to conceptualise alternative frameworks instead of bringing in changes within an existing framework.

ORIENTING YOUNG MINDS TOWARDS CRITICAL THINKING

It is of paramount importance to know that problem-solving skills are acquired when children immaturely and incompetently engage with the real world, thus triggering a series of failure, feedback and conclusion cycles. Every encounter with real life situations is a lesson in 'what, why and how?' These juvenile attempts also play a major role in building a child's persistence as well as resilience when faced with challenges.

The entire premise behind encouraging students to think is to avoid spoon feeding them information. So how do you teach them to think without giving them the answer? You leverage their strength of 'asking a ton of questions'. Here is how:

1. **Don't stop at "what", ask "how" and "why":** We all remember being asked in our biology class "what is the power house of the cell?" and us yelling "mitochondria are the power house of the cell". How many of us really remember why? Exactly! Today we know the facts but not the reasons and that has significantly inhibited our thinking.

We need to avoid this rookie mistake and ask students the same question differently: "Why are mitochondria the power house of the cell?" They now know a fact and need to find out why that is

so. They have cell phones and internet today which they will finally put to good use.

- 2. Don't stop at step 1, ask "How?":** Educator and teacher trainer Brian Oshiro believes that students must present some kind of evidence which equips them with something to defend their answer with against a logical attack. Ask them "How do you know this?". This helps kids scrutinize their source of information and decide what is reliable and what is not.

Another curiosity jogging question is "how does X happen?" or "how does Y work?" or "how will Z affect X?" 'How' is a powerful question and a great thought provoker. It will get the students' neural network firing with productive thoughts.

- 3. Encourage them to believe that their perspectives could differ from the masses:** A great way to get this train of thought started is to ask comparative questions or 'cause-effect' questions. Here is what I mean:

We are all aware how detrimental pollution is to any inhabited place on this planet. But we must delve deeper. Ask "how does air pollution affect Delhi or Shanghai?" Ask "how does Bangalore deal with water pollution?" or "how will the melting ice caps affect mankind?"

These questions will instigate a plethora of answers and all of them could be right from their own individual perspectives. That is exactly what promotes healthy discussions and sharing of opinions. Oshiro says this approach nudges children to think about the effect of a situation on others.

- 4. Finally present them with a problem and ask them to solve it:** Do not make it so generic that the kids struggle with arriving at a focus point. Ask them solutions to specific problems such as "how can we help the poor family living on the street?"; or when they come of age, ask "how could Maharashtra have dealt with COVID-19 better?"

Such questions will drive them to think of social, political and economic aspects of each problem – a great way to stimulate diverse thinking. This isn't just for the young fledglings getting through school, but all of humanity. We must all explore various facets of a problem before we set out to solve it.

WAYS TO ENHANCE CRITICAL THINKING (IRRESPECTIVE OF AGE)

Helen Lee Bouygues, founder of Reboot Foundation & interim CXO to a dozen companies says "critical thinking is a learned skill". Irrespective of whether manually imbibed or ingrained from exposure to life itself, she lists three ways to improve critical thinking from her personal experience (and that of her researchers):

- 1. Question Assumptions 'Deliberately':** We tend to question everything when the stakes are really high but otherwise we pretty much accept what is thrown at us. E.g. If a student asks "why is the sky blue?" and you answer with "it is blue on all planets", (s)he won't bother to ask "why?" because they have nothing to lose.

But on the flip side here is an interesting example from Pontiac (then owned by General Motors). Pontiac HQ got a strange complaint one day saying 'My car is allergic to vanilla ice cream, it won't start! Please help!' We all know the two factors are unrelated and that Pontiac could have chosen to shrug it off. But they didn't and instead sent an engineer to diagnose, document and troubleshoot. To his surprise the complaint was true and the car would start when the man bought any other flavour but not when he purchased vanilla! After four days of scrutiny, he realised where the problem was. Vanilla was a popular flavour and was stored in the front of the shop whereas all other flavours were stored at the back of the shop. Therefore it took much lesser time to make a vanilla purchase which in turn did not allow the engine to cool down enough to remove the 'vapour lock' caused by the petrol fumes. QUESTION EVERYTHING – ANSWERS COULD BE RIDICULOUSLY ENLIGHTENING!

- 2. Follow the 'Chain of Logic':** It is crucial to ensure that all turning points in a discussion are backed by evidence and build up on each other to lead to a sensible conclusion. More often than not we engage in thought after the problem has occurred, believing that the previous event must have caused the latter. It is known as *post-hoc thinking* and it may not always be the case.

E.g.

Premise	Instinctive Conclusion	Evidence backed Conclusion
The sales of a masks in late 2019 rose sharply in China.	Pollution rose steeply in China.	COVID was ravaging China.
Evidence:	None	Pullulation of the virus in Wuhan.

- 3. Seek Assorted Thoughts & Collaborate:** Our journeys through life make us unique individuals; they lead us to varied experiences and help us build a perspective. Each individual perspective is built out from his/her own story. While it is certainly advantageous, it must not make you anti group-thinking. Solicitation of each unique perspective encourages us to consider a myriad of possibilities, enabling us to arrive at informed and well thought out decisions. An assortment of thoughts for the win!

E.g. If your job involves operations and supply

chain, make friends in finance and marketing. Escape your bubble and look beyond it where enriching insights await. When taking opinions, encourage every contribution without the influence of peers. You may discourage group thinking in that moment but if the decision was yours to make in the first place, you took every opinion into unbiased consideration.

Such practices are barely noticeable in a corporate / educational setting because the hard truth is that we do not factor in alternate opinions. If only we took those group assignments more seriously through college! Thinking smart opens more doors than parochial thinking closes.

CONCLUSION

It does not matter how old you are, where you work or what profession you belong to when it comes to critical thinking. A universally essential skill, it must be reinvigorated in a generation that has lost the habit of questioning, reasoning and analysing information. Technology was meant to help us work things out faster – get answers at our fingertips. Instead, here we are, engaged in a social media charade. Encourage more questions, be ever curious, be collaborative and deploy all

of that information you gathered into making an informed, logical and thoroughly fact backed solution.

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