

Next Generation High School Students Should Be Equipped With New Skills

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Changing World

- The formation of the current education system has its roots in industrialization of 1800s and today it educates students for the world that no longer exists.
- Schools should introduce the students to the world that is engaging, not isolating.
- PISA-Program for International Students Assessment (2006) and AIR-American Institutes for Research suggested that there is lack of mastery of knowledge and kids do not develop critical thinking and logical reasoning in the US. The lack of critical thinking skills is one of the reasons why kids do not succeed in college.
- No Child Left Behind (NCLB) Act, 2001. Motivated for teaching to the test; memorization of facts; and lack of understanding.
- The recipe for excelling in present education system became practice, practice, practice so you answer questions quickly, without thinking. Skip anything unfamiliar, rather than waste time trying to figure it out. Don't think creatively, since that costs time and points. Perform like a machine.

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To answer to the changing and challenging world students need to develop the following skills

- Have **purpose**
- Be brave, **not perfect**
- Do not fear away from **challenge**
- Be **resilient**
- Develop **critical thinking**: Know how to deal in unfamiliar situations

Finding purpose

Help students find purpose

- People who know their purpose in life are unstoppable, they are true to their purpose. They are able to take a pleasure in living a purpose~even the routine things become creative when you are motivated by purpose.
- Psychological researchers have identified a noble purpose as a developmental asset (Benson, 2006), an important component of human flourishing (Seligman, 2002) and a key factor in thriving (Bundick, Yeager, King, & Damon, 2009)
- Two groups of students: one was asked to “study” the passage and the other to “make it meaningful to them”. The “Meaningful group” showed better results in understanding and remembering the passage.
- Engage in learning



Brave not Perfect

- Teach students that by failing they will embrace imperfection. It is ok not to be perfect.
- Girls need more encouragement in being more brave
 - Research conducted by RSM foundation in 2017 among 9000 participants of International Math Contest (IMC) suggests that Girls skip a problem or erase their answer more often than boys
- Men apply when they meet 60% of qualifications for a job. Women apply when they meet 100%

SUGGESTIONS

- It is a work in progress: Yet...But (I am not great at MATH YET BUT it is getting better)
- When girls receive critical feedback they think that they are the problem.
So, point out the correct things first.

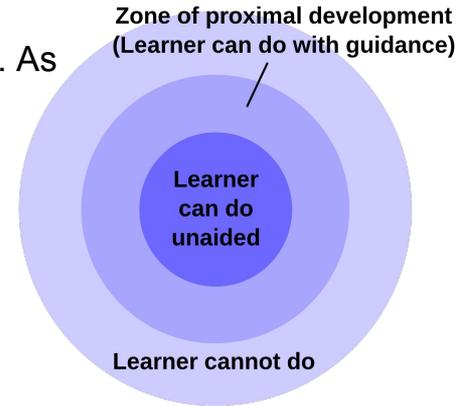


Not to fear away from challenge

- It was Aristotle who once argued that “learning is no amusement but is accompanied with pain.”
- Zone of Proximal Development (ZPD) Theory by L. Vygotsky: ZPD is a moving target. As a learner gains new skills and abilities, this zone moves progressively forward.
- Cognitive scientist Bob Bjork argues that “Desirable Difficulty” enhances learning

SUGGESTIONS

- They need to be pushed slightly off their comfort zone for a mastery to happen and a new knowledge to be acquired
- Help them to fail early and often. Students need to learn to struggle and we need to support them
- Provide opportunities to learn at a level slightly beyond their skills
- Normalize the struggle



Teach Resilience

- Growing mindset theory: Individuals with a growth mindset believe that effort or training can change one's qualities and traits.
- Study with Japanese and American students: Impossible problem study at UCLA: American kids <30sec. Japanese kids 1 hours.

SUGGESTIONS

- Break the perception that they are not fundamentally good at one or the other subject
 - Very common misconception is that MATH ability is predetermined at birth
- Emphasize the effort.
- Sticking to something in order to master it.
- Stanford Resilience project suggest that hearing others' struggles helps students.



Develop Critical Thinking:

To know how to deal in unfamiliar situations

- Critical thinking goes back to Socrates' time. Socrates was questioning everything with his students, of which Platon was the most known. Instead of giving definitions and rules he wanted his students to develop the understanding of the concept by analyzing where things come from, how they work the way they do.
- It allows students to apply the knowledge in different settings.
- Critical thinking helps students to master very complex concepts easier.
- The goal of knowledge is to change how we think about a fact or idea.
- Understanding is what allows us to use skills and knowledge in different situations.

SUGGESTIONS

- Ask questions and teach students to learn to ask question. Bloom's taxonomy questions.
- When students develop the ability to question and understand the origin of the concept this helps them develop. Instead of giving information help to unpack knowledge.

Develop Critical Thinking:

To know how to deal in unfamiliar situations

Nobel prize winner's mother was asked how you develop such a bright person. She said every day when he was back home from school she asked not what grades he got but **what questions did he asked?**



I can use the information:

to build new ideas

To express and back up my opinion

By breaking it down to understand it better

in a new way

to explain ideas

to remember facts

Asking Thinking Questions

